OCTOBER, 1961

Industrial FINISHING

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Pretreating and Painting Parts for Buick Automobiles

PAGE 28

Good Design Simplifies Decorative Painting of Molded Plastics
PAGE 43

Processing and Coating Wide Metal Strip
PAGE 52

Coatings of the Future . . . . Today
PAGE 62

How We Paint Clinton Engines
PAGE 78

For 37 *Years The Leading Publication Serving The Finishing Industry*

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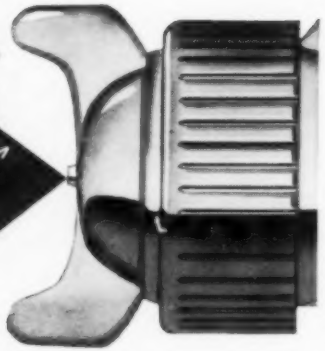

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Industrial FINISHING

W. H. ROHR, *Editor* P. C. BARDIN, *Field Editor*

October, 1961
Vol. XXXVII, No. 12

BPA

A monthly magazine for company executives, production superintendents, process engineers, chemists, purchasing agents, paint shop and finishing department foremen of industrial plants where product surface cleaning and painting are major operations in the manufacture of parts and products of all kinds.

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CHAS. R. BROWN

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Accepted as Controlled Circulation Publication at Indianapolis, Indiana

37 THIRTY-SEVENTH YEAR OF PUBLICATION

Random Comment

Protects Polished Metal Surfaces. Metal Skin is the name of a polymer protective, transparent film for metal. It can be rolled onto the surface in any in-line operation. The great flexibility and high abrasion resistance of this film allows metals to be formed, bent, drawn and stamped with complete protection to the surface.

The film can be imprinted at the time of application at no extra cost, and may be removed after fabrication, or left on to be removed by the ultimate consumer. Peels off easily. The manufacturer is MetalSkin Corp., 3 Tenafly Road, Englewood, N. J.

* * *

New Coal Car Coating. The service a coal hopper car sees in a typical year can raise havoc with a protective coating. Coal cascades down slope sheets, and sulfuric acid forms in concentrations strong enough to erode railroad tracks. Add exposure to all kinds of weather, and the combined attack is enough to corrode and deteriorate both coating and car.

In looking for a coating that could stand up in service significantly longer than conventional materials, a coal mining company in Windber, Penna., turned to a compound containing an LP liquid polymer. LP liquid polymers are produced by Thiokol Chemical Corp. The coating compound selected was formulated by Cosden Paint Co., Beverly, N. J. Trademarked "Lipoxy," the compound is applied by spray or brush, cures at room or elevated temperatures.

* * *

Multiple Lifting Power. A small portable winch, called Mighty Muscle, weighs only 6-lbs. but enables one person to lift more than 2000-lbs. easily. A spring actuated pawl and ratchet system provides solid safety, yet gives an instant, completely free re-

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lease when desired. Gra-tite Mfg. Divn., Gray Properties, Inc., 421 S.W. 6th Ave., Portland 4, Oregon.

* * *

Spiral Shape Fluorescent Tube. Development of a revolutionary fluorescent light bulb, involving the first major change in fluorescent lighting in more than 20 years, is announced by Duro-Test Corp., North Bergen, N. J.

It's the brightest fluorescent light bulb.

Utilizing an entirely new principle in fluorescent tube design, the new bulb produces the brightest kuorescent light yet developed for commercial and household use by the lighting industry.

The new bulb, known as "Power-Twist," was developed after extensive research and numerous experiments in the company's laboratories. The new bulb is helicoidal (spiral) in design. Its cross-section, instead of being round, is pear-shaped, thus providing the highest light output.

* * *

Better Packing and Shipping. An "idea" booklet, geared to help management increase efficiency and cut costs of its packing and shipping operations, has been published by Better Packages, Inc. of Shelton, Conn.

"20 Tested Methods to Improve Packing and Shipping Operations" is a 16-page illustrated booklet containing tips, ideas and suggestions for shippers. It includes chapters on safety, savings, product protection, proper maintenance of equipment and lists, as well, several new techniques in packing and shipping developed by Better Packages, Inc.

Furniture of Wood. Plastics and metals will become increasingly important in furniture, but the magic, warmth, and matchless beauty of wood secure its position for all time. Its various kinds, diversity of application, and range of finishes are in themselves an exciting story. As recently as a quarter century ago, who would have dared turn out an 18th century dresser in anything but deep brown-red mahogany? Modern just had to be blond, and Early American, red maple.

Though the "big four" are walnut, cherry, maple, and mahogany, in about that order, a number of other hardwoods—birch, pecan, butternut, teak, and oak—combine to take a major slice of the market. Then, with the "plus" of distressed finishes and the decorative, highly figured burls and exotics, the combinations and possibilities became endless.

* * *

Adhesive Seals Ducts. EZ-4719 Duct Sealant Adhesive forms a tough, flexible seal which is air tight and water tight. Once cured it will not flow under pressure or heat, but flexes with expansion and contraction of the duct. The adhesive bonds to both galvanized and aluminum duct work and has a temperature rating of minue 20° to 200° F. The manufacturer is Permacel, New Brunswick, New Jersey.

* * *

Tough Paper Wrapping. The Ford Motor Co. now wraps bumpers, doors, quarter panels, fenders, deck lids, mouldings and other metal parts in Clupak extensive paper for shipment to parts depots throughout the country. This paper is essentially a kraft paper which is compacted and compressed as it is made, so that it will give or stretch upon impact and absorb more energy before tearing than regular kraft.

For more data, circle 154 on colored card. ——→

Now, get all the advantages of solvent-based enamels without the danger of fire in the formulating process or baking room. Water-soluble Melaqua® 600 melamine-acrylic resin is non-inflammable, yet delivers high gloss . . . hard finish . . . resistance to weather and heat. Melamine resin makes Melaqua 600 hard and solvent-resistant. Acrylic polymer produces smoother films and cleaner, brighter colors. Write for information about Melaqua 600, the first of a wholly new family of water-dispersed thermosetting industrial coating resins.

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A request written on your stationery will bring complete information about this remarkable new finish.

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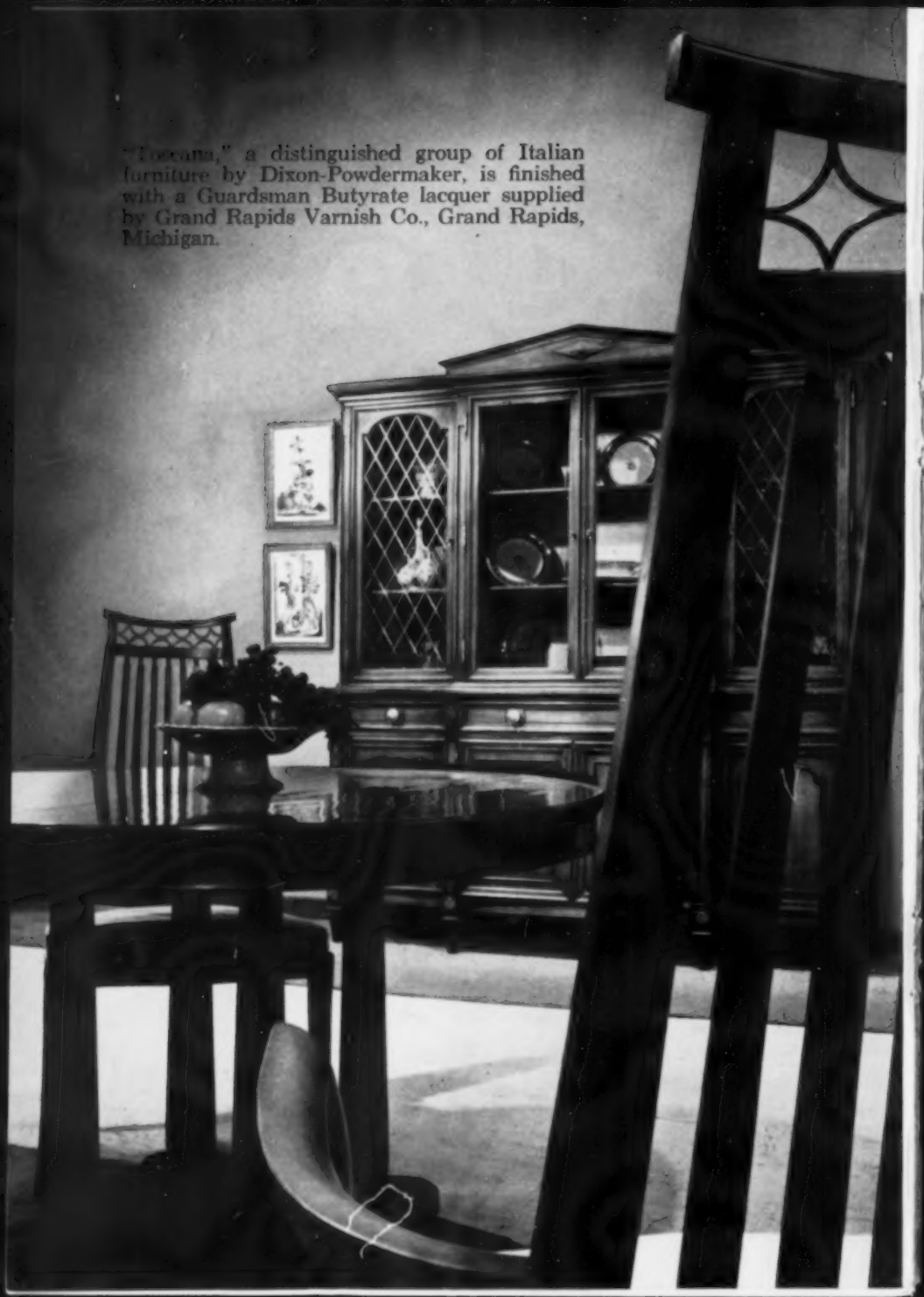

"Toscana," a distinguished group of Italian furniture by Dixon-Powdermaker, is finished with a Guardsman Butyrate lacquer supplied by Grand Rapids Varnish Co., Grand Rapids, Michigan.

The finest furniture deserves the finest finish...

a **BUTYRATE** lacquer

Dixon-Powdermaker preserves the distinctive beauty of its finest pieces with a Butyrate topcoat lacquer. Another example of a leading manufacturer of fine furniture matching the excellence of its design and craftsmanship with the highest quality materials obtainable.

Finishes based on Butyrate are stain resistant and non-yellowing. They can be applied easily and quickly with conventional equipment, dry dust-free in minutes. For more information about Butyrate lacquers, talk with your lacquer supplier. Or write EASTMAN CHEMICAL PRODUCTS, INC., subsidiary of Eastman Kodak Company, KINGSPORT, TENNESSEE.

NON-YELLOWING, STAIN RESISTANT

BUTYRATE

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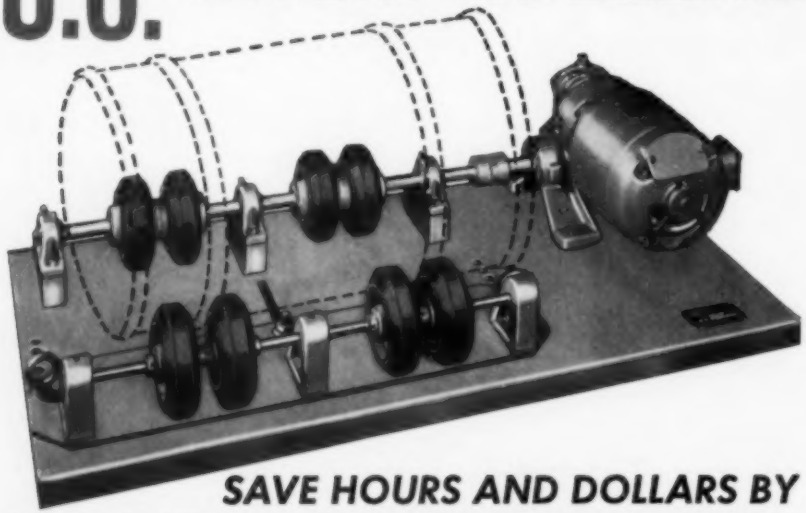
"U.S." DRUM ROLLERS



SAVE HOURS AND DOLLARS BY MIXING MATERIALS IN THE SUPPLIER'S DRUMS

Not only do you save valuable time by *not* transferring materials from one container to another, but even more important, you eliminate the chance of contamination. "U.S." Drum Rollers handle *any* round container from a 5-gallon pail to a 55-gallon drum. Bungs, bands or flanges make no difference . . . rollers adjust to the type of container.

Electrically conductive Neoprene wheels on ball bearings provide *smooth* rolling. All-welded extra-heavy steel bases assure rigidity, long, trouble-free life. Constant speed, or variable speed drives, plus a range of sizes, meet your capacity requirements. Explosion-proof and air-driven motors for use in volatile atmospheres are optionally available. WRITE TODAY for Bulletin DM-290 containing details on the full line of "U.S." Drum Rollers.

Process Equipment Division

407-G

U. S. STONEWARE

AKRON 9, OHIO

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Silver finishes should be bright. They should have lustre and sparkle. Do your silver finishes have these qualities or are they "tattle-tale grey"?

Now, you can produce a brighter silver with Nacromer. By applying a top coat of Nacromer over the appropriate base pigments, you get a clear, lustrous silver, free of "tattle-tale grey." Nacromer provides the "sterling" quality that will make your metallic finish stand out.

Used as indicated above, Nacromer may also be used to create brilliant, tarnish-proof gold, brass, and bronze finishes. It is compatible with most coating vehicles and can be applied to almost any material by the usual coating methods.

Our technical staff will be glad to guide you in the use of Nacromer for your metallic finishes. For complete information, write today. Also ask for the new, revised edition of our 8-page Nacreous Pigment Handbook—it contains important data on the use of Natural Pearl Essence and Synthetic Pearl Pigments.

Nacromer® SYNTHETIC PEARL ESSENCE MAKES CLEARER, BRIGHTER SILVERS

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world's leading producers of pearl essence
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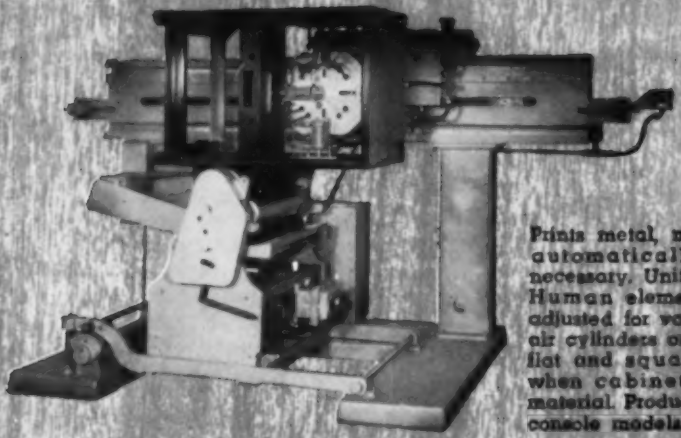

Prints metal, masonite or wood cabinets automatically. No jigs, no fixtures necessary. Uniform printing, no misprints. Human element eliminated. Quickly adjusted for various sizes. Cabinet held by air cylinders on inside, assuring a perfect, flat and square printing surface even when cabinets are made of thinnest material. Production-2 per minute on large, console models.

Wood

This machine is built in various sizes from the narrowest up to 38" wide, for the graining of various sizes and thicknesses of panels, tables and similar work. Can also be used for edge graining. Explosion-proof motor is mounted beneath a solid base, eliminating fire hazards.

This trademark SCHMUTZ recognized as builders of fine printing machinery since 1923.

This trademark is known not only in this country, but throughout the world for modern and highest quality printing machinery. Now manufacturing more than 60 different types and models.

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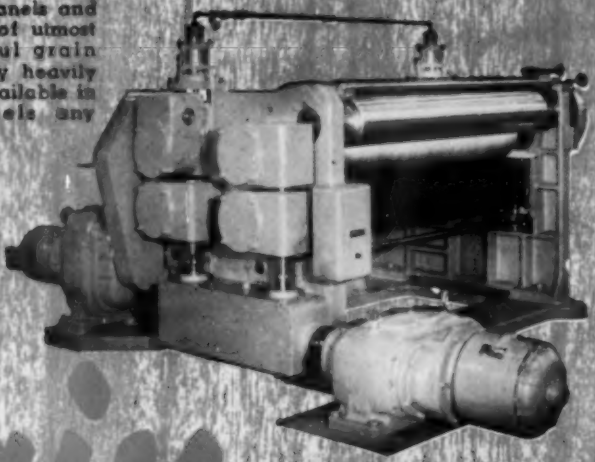
U. S. A.

Reverse Roll Coater for eliminating imperfections in hardboard panels and other sheet material, which is of utmost importance in securing beautiful grain effects. These machines are very heavily and accurately built and are available in two sizes for 36" and 48" panels, any length and up to 2" thick.



Grain REPRODUCING EQUIPMENT

This large, heavy duty machine has been especially designed for printing unusually beautiful grain effects on large panels. Panels are automatically fed through the machine so that perfect registration of design can be had. Machine carries two sizes of engraved cylinders: 10" diameter for straight grain and 20" diameter where design of wood is such that repeating is objectionable. Standard size machines will handle panels 36", 48" and 84" wide, up to 12' long and from the thinnest to 2" thick.

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For millions of housewives, the Sunbeam Mixmaster takes the hard work out of food mixing. • And for dealers, Sunbeam styling has taken the work out of selling. • Cook's finishes lend a crowning touch to Mixmaster and other Sunbeam electric appliances. • Here's beauty that's in step with fine engineering and top quality. • Hundreds of other manufacturers, too, depend on Cook's to add to the quality look of their products. • And your product? Maybe Cook's can help you, with added buy appeal and possible production economies. Worth looking into!
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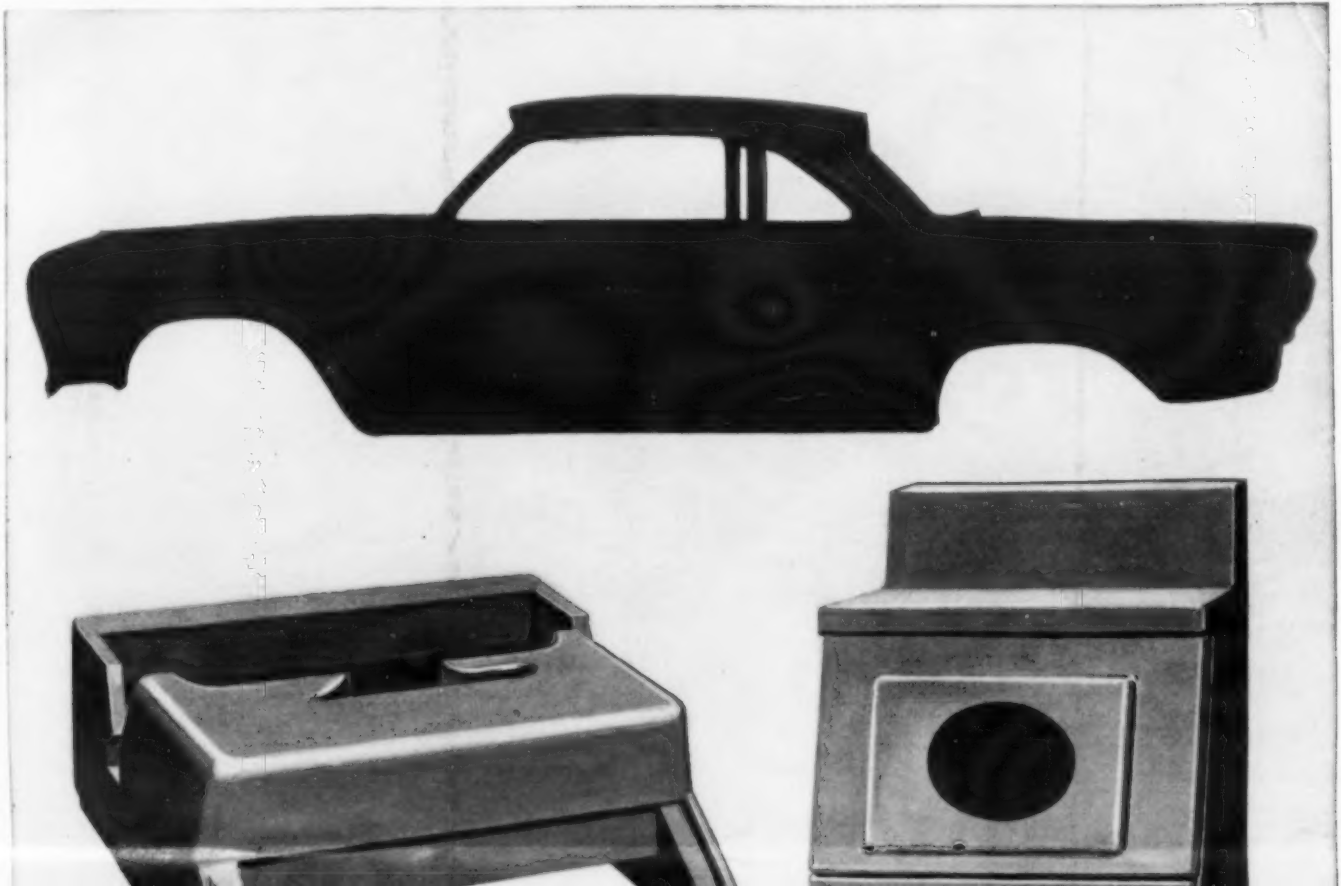
What's News in Enjay Resins...



BUTON® Resins produce tough, low-cost primers!

Buton resins contribute to low-cost, long-lasting protective metal primers. Several inherent properties make them a natural choice for numerous metal priming applications. Buton resins possess excellent hardness, toughness, and flexibility . . . combined with outstanding resistance to such corrosive materials as: detergents, salt spray, boiling water, plus many acids and alkalis.

Buton resins offer excellent adhesion on most metals, including steel, galvanized steel, tin plate, aluminum, and various light metals. In addition, they provide good intercoat adhesion with conventional top coats. The initial low selling price, plus the high bulk of Buton resins make possible new savings in primer formulations. For more information, contact Enjay at 15 W. 51st St., N.Y. 19, N.Y.

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HIGH PRESSURE AIRLESS PAINT HOSE

- lower cost
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A-3213A

Contact your local paint spray equipment dealer for New Synflex 30X Airless Paint Spray Hose or write direct to us.

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Mantua, Ohio

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Industrial FINISHING

October, 1961, Issue

Reader Service Department

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☐ Second Cover ☐ Third Cover ☐ Back Cover

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For product finishers another new from Binks

NEW compact PUMP for airless spray painting

EXCLUSIVE! now spray direct from original 55-gal. containers

This new Binks Model 41-8881 compact pump mounts directly into the bung of original 55-gallon containers . . . eliminates the cost of transferring material to another container before spraying.

The pump is designed for single gun airless spraying of protective and decorative coatings. All parts—which come in contact with the fluid being sprayed—are made of non-corrosive stainless steel. Parts subject to wear are of a special, hardened stainless steel.

Binks airless spraying gives you the speed and coverage of spray painting with minimum overspray—paint goes where you want it . . . not into the air. Drift is greatly reduced, making this equipment ideal for use indoors or out. Result: savings in time and materials.

Ask about our spray painting school. Open to all . . . NO TUITION . . . covers all phases.

Binks Manufacturing Company 3120 Carroll Avenue, Chicago 12, Ill.

REPRESENTATIVES IN PRINCIPAL U.S. & CANADIAN CITIES · SEE YOUR CLASSIFIED DIRECTORY

Binks Everything for spray painting

Tough, non-corrosive stainless steel parts

Bulletin A41-24 tells all . . . Ask your Binks distributor for a copy. He also can give you complete information on Binks pumps best suited to your operation.

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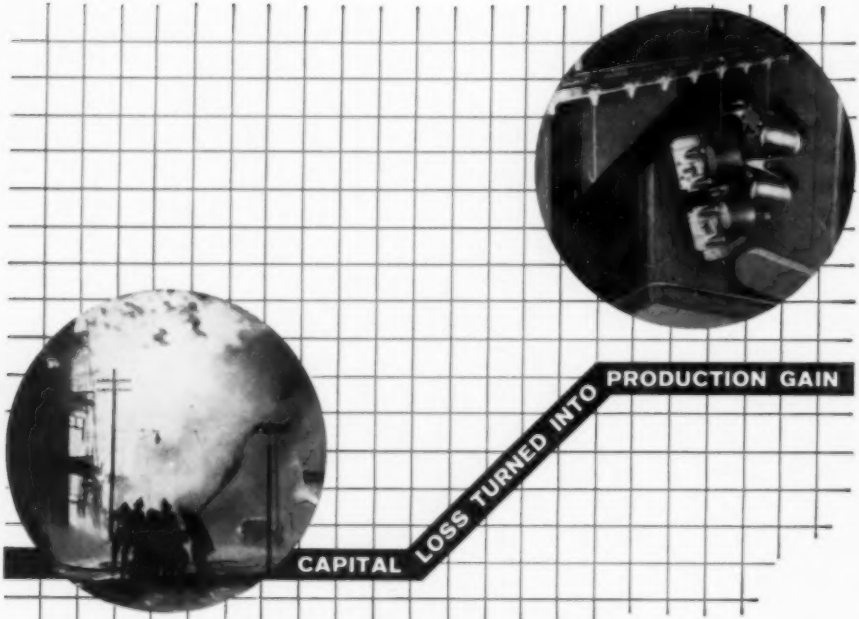


from plant ruins to production records in sixty days

One of the toughest rebuilding problems confronting the Clements Mfg. Co. when their Deckerville, Mich., plant was completely demolished by fire, was speedy replacement of the finishing system needed for phosphate coating and painting of its diversified line of automotive diecast and sheetmetal parts.

The new system had to be versatile—had to handle many different sizes and shapes. It had to be inexpensive to operate fuel-wise and labor-wise. Above all, it had to be delivered and installed in a matter of a few days—it had to do a high quality job right from the start—and it had to take up little floor space.

Experienced MOCO design and process engineers rose to the challenge.

First, a 3 stage washing machine for phosphating and rinsing was designed and built at the MOCO plant, and shipped completely finished, except for piping hook-up, directly to the Clements Mfg. Co. plant.

Next, MOCO engineers tackled the drying and paint baking problem. A combination Dry-off and Bake Oven was developed that could dry parts as they came from the washing machine on their way to the spray booths, and bake the painted parts as the conveyor returned them to the oven for a longer period before delivery to the conveyor unloading station.

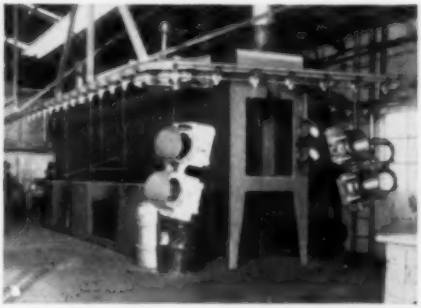
The Dry-off and Bake Oven was too large to ship already assembled, but MOCO's unitized design made assembly at the Clements Mfg. Co. plant a relatively simple matter.

Within 60 days of the disaster, the Clements Manufacturing Company plant was back in full operation with production at a higher level than ever before, thanks to MOCO ingenuity, engineering skill and desire to serve its customers. MOCO problem-solvers will welcome the opportunity to serve you.

Write for the name of our representative nearest you.

FREE—Send for your MOCO bulletin showing typical finishing system applications and specifications; no cost or obligation, of course.

A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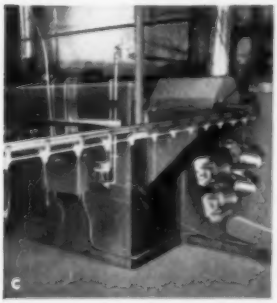
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E

A—Sixty days after the Clements Mfg. Co. plant was burned to the ground this finishing system was in operation in the rebuilt plant. In the right foreground workers are loading and unloading parts. Behind them is the MOCO Washing Machine. On the left, paint spray booths hide the MOCO combination dry-off and paint baking oven. B—Start of the completely conveyorized finishing cycle. From loading station at left parts enter MOCO 3 stage washing machine for washing, rinsing and phosphate coating. C—Finishing parts coming out of combination dry-off and bake oven on their way to unloading station. D—Entrance view of phosphating machine indicating risers, nozzles, street els, drain decks, access walkways, spray zone silhouettes shown immediately after pump stopped. E—3 stage MOCO washing machine showing tanks, fill and overflow pipes and valves, pumps, burners, controls and exhaust ducts.

60-A

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SPRAY BOOTHS • FLO-COATERS • FINISHING OVENS • CONVEYORS

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Pretreating and Painting Parts for Buick Automobiles

By Herbert Chase, M.E.

EXTENSIVE changes have been made in the facilities for processing sheet metal parts through the painting system at the Buick Motor Division of General Motors in Flint, Mich. The parts processed include front fenders, hoods and many smaller stampings that have to match bodies supplied by Fisher Body Division.

Before any priming or finishing coats are applied, it is necessary to clean the parts thoroughly and to give them a phosphate coating which not only improves corrosion resistance but provides an etched surface that promotes excellent adhesion of the primer to the metal. Iron phosphating now has given place to zinc phosphating because the latter yields superior resistance to corrosion. Resistance to rust has become a problem especially where cars are exposed to sea coast salt air or streets and highways that are treated with chemicals to quickly melt the snow and ice during winter months.

Surface Cleaning, Phosphating In 7-Stage Tunnel

The phosphating treatment at Buick takes place in a new 7-stage tunnel through which parts are advanced by three parallel overhead

Clean prime-coated hoods and fenders, enter this booth to receive an acrylic finish.

Wet sanding fenders and hoods which are resting face up on floor-track bucks.

chain conveyors. One of the conveyors, moving at the rate of 30-ft. per minute, handles a variety of small parts. The two others, advancing at 23½-fpm., carry respectively the larger parts for the Buick "Special" and similar parts for other Buick models of larger size.

In the first two stations of the phosphating line an alkaline cleaner solution, heated to 160°F., is sprayed over the surfaces of parts. In station 3, water heated to 150° F., is applied for rinsing. Then comes another water rinse at station 4. Although water that initially comes "cold" from the tap is used, a pump draws the water from a recirculating tank to which the sprayed water returns after picking up heat from parts coming from the hot rinse, hence the second rinse usually is at about 140°F.

Cleaned and rinsed parts that enter station 5 are sprayed with the phosphating solution which includes a toner designed to "kill" the effect of any iron in the solution. It is heated to 130°F., and parts remain in this spray for one minute. This solution is recirculated but, in common with other solutions, it is checked at intervals and makeup chemical is added at a controlled rate by a proportioning pump to maintain proper concentration. Titration checks are made hourly at the phosphating tank.

The parts in process are rinsed with room-temperature water at station 6, after which they enter

Filtered fresh air enters the flow coating and spray booth areas to assure clean finishing and to reduce to a minimum any health and fire hazards that might be real or imaginary.

station 7 where they are given a spray rinse of chromic acid diluted with deionized water and heated to 130°F. This operation completes the processing in the phosphating system. The parts continue through a dry-off oven where a fast-drying takes place at 450°F. Capacity of the phosphating system is 30,000 sq.ft. of surface an hour. Parts continue on the conveyor and cool to room temperature before being primed.

Wheels and smaller parts are sprayed with lacquer to match fenders, hoods and bodies.

Primer is Applied by Flow Coating Process

Priming, formerly done by dipping, is now accomplished by flow coating as the parts continue on the three chain conveyors on which phosphating was done. Each chain traverses its own channel in the flow coating tunnel. Parts pass through jets of primer pumped at 14 to 16-lbs. per square inch from both sides, top and bottom in a pattern designed to insure complete coverage.

A black alkyd primer is used at room temperature and is held to a viscosity of 20 to 22-seconds as measured by a No. 2 Zahn cup. This primer is drawn from a 500-gallon tank directly below the flow coating area. All excess paint, dripping from the parts, is returned to this tank. Makeup material is pumped as needed from a 1000-gallon mixing tank on the main floor. Fresh filtered air enters the flow coating tunnel at its front end and is exhausted, along with fumes, beyond the drip area in which parts remain for 15 minutes.

For all hoods and fenders the operations include cleaning and rustproofing, flow-coat priming, baking, sanding, tack rag wiping, spraying the acrylic coats, baking, wet sanding and polishing.

In the flow coating setup fire hazard is minimized by using closed tanks of relatively small capacity, as compared with the 30,000-gallon

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Oakite 24 is but one of a wide range of alkaline tank-cleaning compounds. Others include medium and light duty oil and grease removers; self-emulsifying solvent cleaners specially designed for removing buffing compound residues, pigmented drawing compounds and other tenacious burned-on solid-particle dirts and smuts. Also available is a useful selection of materials for cleaning brass, copper, aluminum, magnesium, lead, tin and zinc.

Which is best for you? Only you and the Oakite man together can decide. It depends on your equipment, the parts you process, the next production step. Ask the Oakite man. From over 30 materials, you're *sure* to get the one cleaner that works most efficiently for you. Write for Bulletins. Oakite Products, Inc., 20 Rector Street, New York 6, N. Y.

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open dip tank formerly employed. At the end of each day, the flow coating and drip areas are cleaned with kerosene which, after serving as a cleaning solvent, is returned to a separate tank.

Baking the Primer; Then Sanding, Blow-off and Tack Rag

Flow coated parts continue by chain conveyors through a bake oven on the roof. This oven is heated with gas from five combustion units on the floor below the oven. The coated parts are in the oven for 45 to 50 minutes, at a temperature of 380°F. After traveling around a long circuit to permit the parts to cool to near room temperature, the fenders and hoods are unloaded by hand in an area near the beginning of the flow coating line.

Primed hoods and fenders, removed from the conveyor chain by hand, are placed on bucks that hold one hood or two fenders. These bucks travel on a floor track that passes through an area where manual dry sanding removes any fat edges, pimples or other defects. The sanded parts pass "dog tail" air blow-offs before moving into an area where tack rags are used to remove any remaining dust particles. Each buck carries a card prepared from teletype scheduling information, that specifies the color of finishing coat to be applied.

Color Coat Spraying; Preparation of Materials

Color coats are sprayed in a 120-ft. long well-lighted tunnel booth which is supplied with fresh air drawn from outdoors, heated (when necessary) to 75°F., filtered and distributed via top inlets along the length of the booth. This air, together with spray fumes and overspray, is exhausted through floor gratings. Spray guns use air supplied at 70-lbs. per square inch. Spray operators work at both sides of all stations. At all but the first of these stations there are guns for each of the 15 colors used.

Bucks carrying the parts are spaced about 20-ft. apart and are advanced at the rate of about 16-ft. per minute. All three coats of acrylic lacquer are applied in this long spray booth, with only slight incidental air drying between coats. The first coat is a light sealer containing no pigment; it is used to insure good adhesion to the baked primer coat previously applied. Three color coats follow the sealer at subsequent stations. Viscosity of the lacquer is held between 26 and 30 seconds as measured with the Zahn No. 2 viscosity cup.

All three coats set quickly but they are applied with so little time between that they constitute what amounts to a single thick coat, as some intermixing occurs as the surfaces flow together. The primer, previously sprayed on and baked, approximately 0.0004-in. in thickness; the three acrylic coats bring the total thickness to about three mills.

All acrylic coats are prepared in a separate room and each colored lacquer is kept well mixed in an agitator tank. Each tank has its own pump that keeps the finish circulating continuously through pipes to spray guns and return. Spray gun nozzle plates rest in re-

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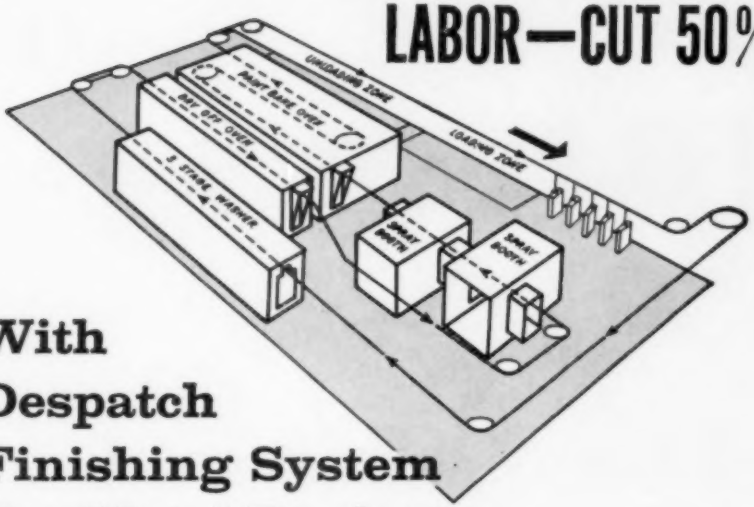

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The figures speak for themselves. Hoffman Engineering Corp., Anoka, Minn., reports that savings in production and labor costs alone paid for its complete new Despatch finishing system in only two years. And production was boosted 300% in the bargain.

The conveyorized system, designed and installed by Despatch engineers, not only produced these remarkable improvements but is capable of easy expansion in the future to match the company's growth.

Despatch's years of experience and imaginative engineering have produced solid results for this Minnesota firm and thousands of others. You can put these qualities to work for you, too. Let us show you how . . . write today! for free bulletin 100A-R.

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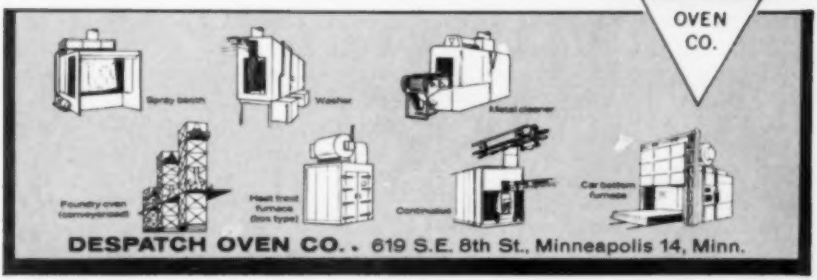


DESPATCH—INDUSTRY LEADERS FOR 58 YEARS

Final polishing of fenders and hoods is done with power driven canvas backed wool wheels.

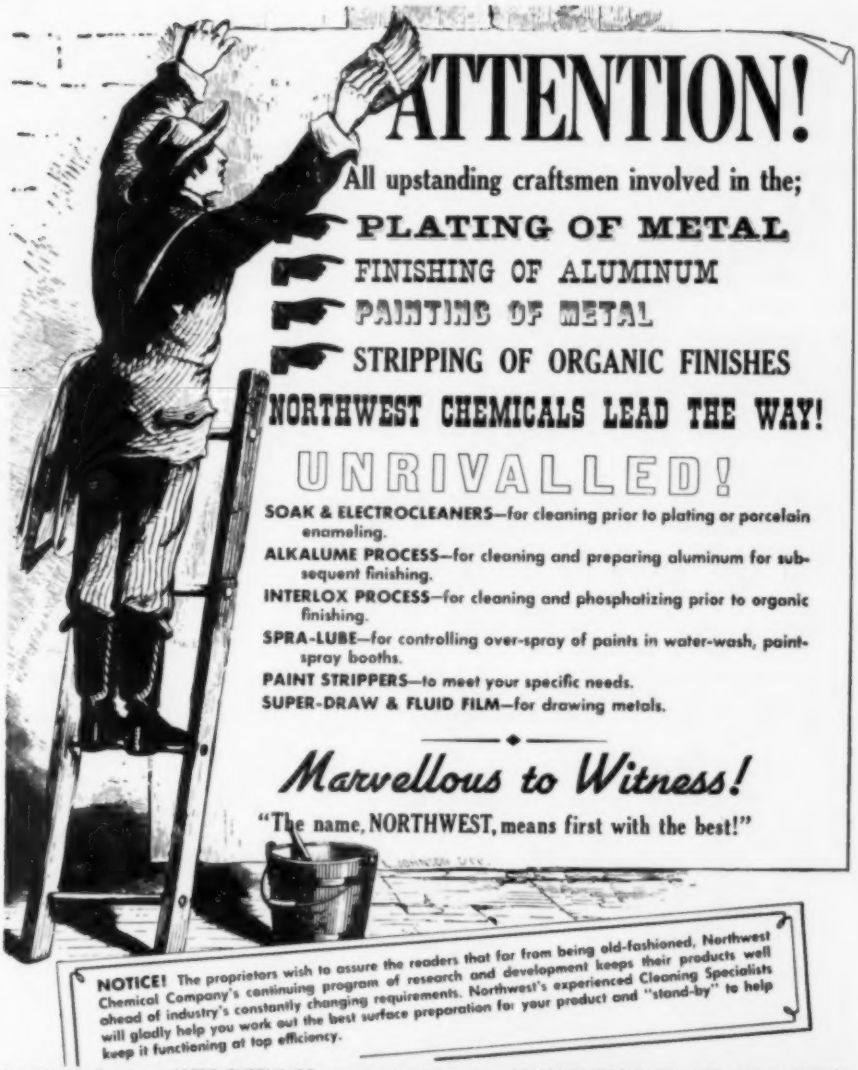
cesses containing solvent, when the guns are not in use, so that the guns always remain ready to spray fresh lacquer.

Infrared Baking; Wet Sanding; Clean off

As painted parts leave the spray booth, the coating is allowed to air dry for two minutes before the parts enter a 25-ft. drying tunnel; this brief air drying before baking prevents possible blistering of the lacquer coating. Time in the tunnel is four minutes. The infrared baking lamps raise the temperature of the finish to about 180° or 200°F. during passage through the oven. Leaving this tunnel, the parts are force cooled to room temperature before they reach the wet sanding area. The parts are still supported on bucks as they advance through the wet sanding stations.

Wet sanding is done by hand-operated pneumatic rotary-type tools having soft sponge rubber backing for the 500-grit paper. Oleum spirits are used as the sanding lubricant. Special care is used to keep the abrasive paper clean and to avoid rubbing through any crowned areas or edges.

For Buick's Invicta models only, masking is applied and the areas left exposed are sprayed with a second color in a short spray booth which is similar to the long color booth previously mentioned. Bucks going through this booth, all still loaded, continue through an oven on a floor above. The second color is baked at 240°F. for 30 minutes. The painted parts, still resting on



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bucks, are advanced to a polishing area. Only hoods and fenders receive the acrylic lacquer coating and the processing just described.

Small Parts; Synthetic Enamel; Less Manual Transferring

Small parts, after they leave the primer bake oven and cooling area, continue on the chain through their own separate finish coating booth. Here they are sprayed with a synthetic enamel (not acrylic) and then are baked for one hour at 250°F. Colors used are precisely the same as those for the larger components, so they make a perfect match with the acrylic finish on the larger parts. All are used in the same chassis and body assembly. No sanding or polishing is needed on the small parts.

Major parts that come through the operations just described are handled (except for flow coating with primer) on bucks partly because this avoids some dust such as is likely to result from transferring by overhead chain. It is also necessary to use bucks for properly supporting the parts during sanding and polishing. No manual transfer of larger parts occurs from the time the parts are lifted from the primer chain and placed on bucks until they are taken from the bucks for transfer by chain to assembly areas. This is highly advantageous because, despite the care used, every manual handling involves a risk of damage which could increase total costs considerably.

Polishing of major components, following their final baking and

After final polishing, hoods and fenders are transferred from bucks to an overhead conveyor which carries them to sub-assembly and then to the final chassis assembly lines.

For more data, circle 170 on colored card. ——————→

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cooling, is done with rotary polishing heads, using manufactured wool pads backed by canvas. These synthetic pads have longer life than natural wool on sheep skins and last about one 8-hour shift. After the initial polishing, a final polish is given with a clean-up buff used in combination with a spray glaze. The latter prevents burning and insures a good luster.

Hoods, because of the conspicuous position they occupy on finished automobiles, receive an extra buffing before the final touch-up buffing. After this final operation, hoods and fenders are unloaded from bucks and are hung to an overhead chain to move through sub-assembly operations and to final assembly of chassis and body.

Partly because of the acrylic finish used on the major parts described here—as well as on bodies received from the Fisher Body Division—the net result is considered to be the finest and most enduring finish ever applied on Buick automobiles. This finish is the net result of using not only top notch finishing materials but of careful and effective pretreatment of the steel surfaces, and of well chosen, though economical, processing through the whole line.

The manual labor involved in the finishing procedure includes, except for loading and unloading conveyors, chiefly that used in hand sanding and polishing operations — although they too employ some mechanized equipment. These operations, along with spray painting, require skill and the expenditure of considerable time, but this work is considered essential, in the present state of automotive finishing—at least on cars in the Buick price range, designed for discriminating buyers.

Binks Spray Painting School To Include Plastics Sessions

Binks Mfg. Co., 3120 Carroll Ave., Chicago 12, Ill., announces dates for the Fall sessions of the Binks spray painting school. They are November 6-10 and December 4-8.

The school will feature a split curriculum this year—a standard spray painting curriculum and a plastics and resin equipment curriculum. Dates for the plastics and resin equipment sessions are Nov. 20-22.

The standard spray painting curriculum will feature a well-balanced coverage of all types of spray painting equipment. Special emphasis will be placed on the newest equipment and techniques, such as airless spray, automatic controls, automatic systems, and the latest in pumps and spray booths.

The plastics and resins equipment curriculum will cover the equipment supplied by the Binks Plastics and Resin Equipment Divison. Included will be the Binks Turbulator/Formulator equipment for applying plural component resin systems, and equipment for applying fiber glass reinforced plastics. These equipment lines, introduced by Binks in 1960, handle materials such as epoxies, polyesters, adhesives, urethane foams, gel-coats and similar materials.

As usual, the school is tuition-free.

Fixtures for Spray Masks

A new brochure which describes and illustrates mechanical and air-operated clamps for holding masks and parts, and standard and special fixtures used to speed up production in high quality color decoration of mass produced products, is being offered by Conforming Matrix Corp., 765 New York Ave., Toledo 11, O. Request Form No. 7624.

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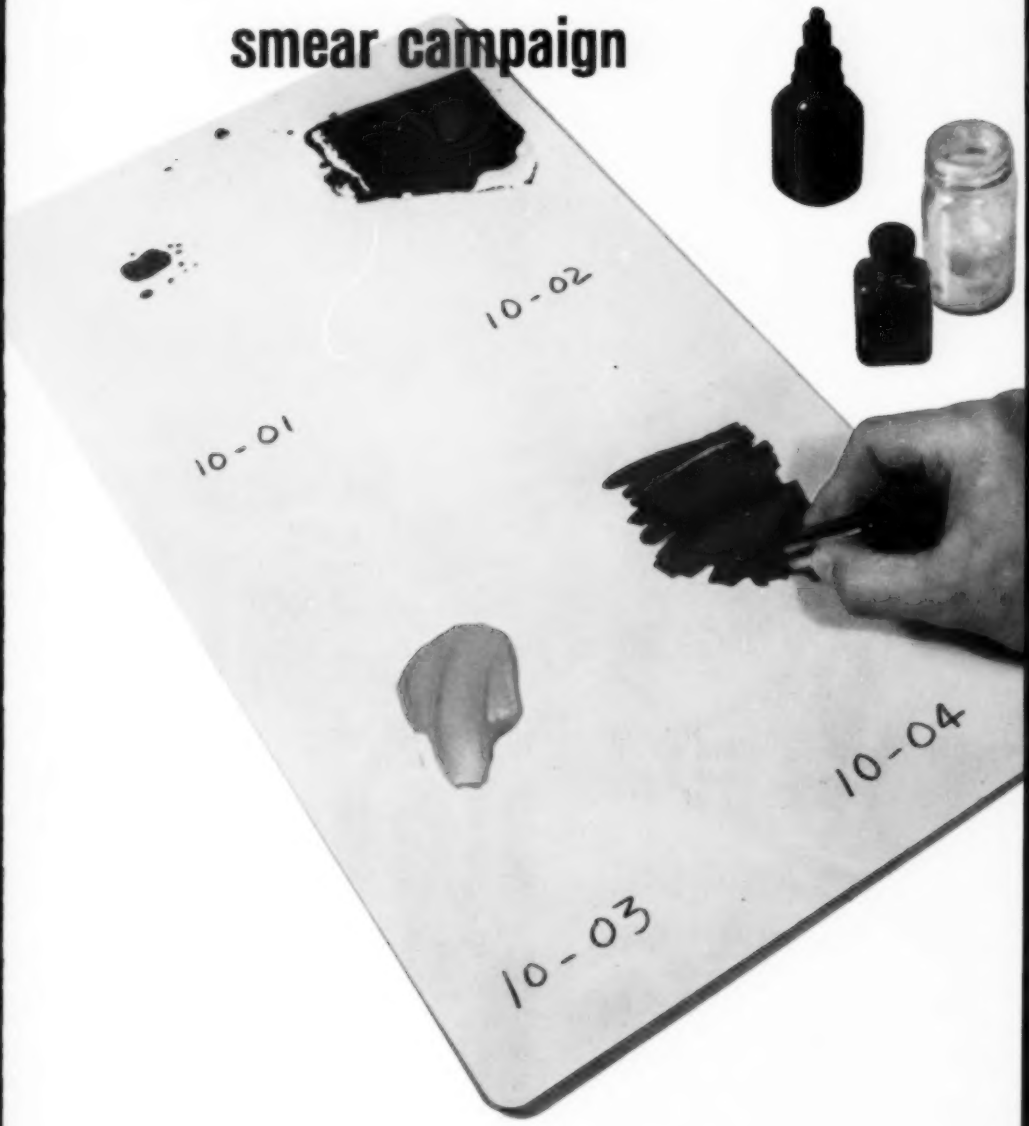
Read about this vicious smear campaign



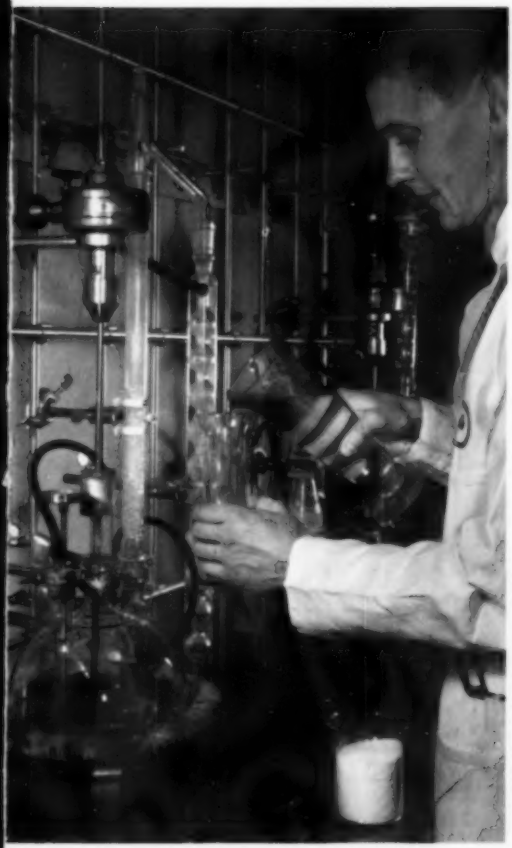
TURN THE PAGE...

The Glidden Company subjects each of its custom formulated appliance finishes to a vicious "smear campaign"—ink, mustard, lipstick and the like. These exacting tests insure that Glidden appliance finishes can later pass the crucial "housewife test."

Every appliance manufacturer wants his product's finish to stand up under difficult service conditions—corrosion, staining, impact, abrasion, heat and cold. That's why Glidden runs samples of its custom formulations through a battery of rigorous tests in their 12 laboratories. Glidden's Nu-Pon primer, Nubelite and Super-Nubelite enamels provide excellent resistance to spills and splashes of household products and take the bumps and hard knocks of family traffic in stride.

The solvents and diluents used in Glidden test samples and production batches *must* be uniform. Consistent high quality is one good reason why The Glidden Company can rely on USS nitration grade Toluene in production of household and commercial appliance coatings.

Glidden keeps abreast of the newest developments in the metal finishing field. In the Paint Research Center experimental coatings are applied to test sheets by this roll-coater.



A new Glidden formulation is under way. The vehicle for a large test sample is being cooked in this reactor.

Finishes that resist corrosion in this salt spray test will endure normal household moisture for years. Sample panels are carefully tested and evaluated.

USS TOLUENE... start of a good finish

TRADEMARK

Nitration grade Toluene from United States Steel is a dependable material that helps The Glidden Company produce top quality formulations for household appliances and other metal finishes. USS Toluene can assure quality in your product, too.

Specially formulated Glidden finishes make it possible for freezers like these to take the every day punishment of supermarket traffic and still retain their clean, inviting look.

Good Design Simplifies Decorative Painting of MOLDED PLASTICS

BY FRED BORRIES

PLANS FOR any painting or decorating of molded plastics should begin long before the parts reach a spray painter or enter a vacuum metallizing machine. To obtain a satisfactory final result, plans for finishing must begin at the designer's scratch pad. Too often molded plastic parts are designed and tooled with only good molding practices in mind. While these factors are important in the molding of any plastic part, it is not enough if the part is to be decorated by any kind of painting or metallizing procedure.

The correct placing of "paint breaks," grooves, steps, etc., is all important. Careful consideration must be given to what is expected of the various decorative coatings that may be specified.

Call in a Finishing Man When Planning New Design

It is always desirable to have a finishing man present when any highly decorative part is near the final planning stage. True, not all plastic concerns have a large enough engineering department to make this possible. But there are enough of them where, before large sums of money are spent for tooling, a man who knows the techniques of modern finishing should be consulted.

After preliminary designs are worked out, it is time to bring the engineering, molding, and finishing personnel together. Here each individual concerned can put forth the points needed to make his part of the over-all job completely workable and satisfactory. Any time that one portion of the job is slighted or overlooked in the planning, that portion will suffer. In your grand scheme of production you will have a weak link which will adversely affect the ultimate finishing.

Once all key personnel have agreed on how a molded plastic part is to be made, it is time to turn the results over to the tool maker where the drawings and ideas are to be permanently cut into a steel mold. Unlike many other toolings, molds of tooled steel are at their best only when they are made right originally—when

no alterations, changes or corrections have to be made. The contours in highly polished hardened steel molds are difficult to change once they have been made.

Consider Delivery Time; Molds Should Be Perfect

The delivery time of finished parts will enter into the picture some time, so let's make it known while the part is still on the drawing board. Each phase of manufacturing requires a certain amount of time if the job is to be done right. No short cuts should be taken in anticipation of a shorter delivery time. Every time someone does a hurry-up job the entire part is almost sure to be something less than perfect in some respect. It may not become apparent immediately but it will show up eventually. Too often the real problem builds up at the last operational area—in the decorative finishing operations. It cannot be too strongly emphasized that the greatest losses usually sustained in manufacturing molded plastics are traceable to poorly made, rushed tools.

After tool delivery, the part is molded. Even before a mold is set into the press it must be thoroughly inspected. There must be no areas that will cause poorly molded contours. All polishing must be perfect; undercuts, lack of draft, and other defects must be caught at this stage of the procedure.

Many molders look on decorative finishing as a separate part of the business. Nothing could be farther from the truth. The final finishing is so intimately related to molding that not a button should be pushed on the press unless and until all finishing procedures have been explained to the molder. He must know if the part he is molding is to be decoratively painted, lacquered or vacumm metallized.

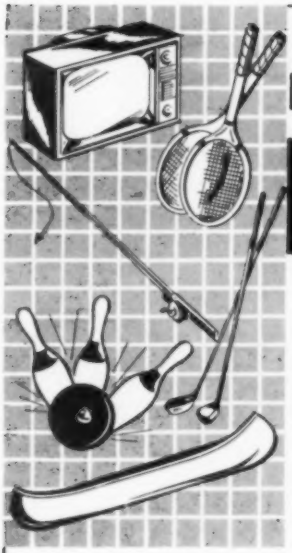
When molded plastic parts are to be printed, painted, or clear lacquered for vacuum metallizing, these important operations must be taken into consideration when the part is being designed.

Mold Release Agents Are Painter's Headache

The use of stearates, silicones or so-called paintable mold releases must be avoided. All finishers know, or should know, that it is not always practical to try a new mold without using mold releases, but they should also know that all releases (all that I know of) can cause multiple problems when it comes to later painting or decorating.

Since it is recognized that the use of some kind of mold release may be necessary, what does the finisher do? First he and the molder get together and talk over details of the part thoroughly; they discuss the mold and the techniques to be used. Next they decide what type of mold release to use. Here is a problem. The molder will want to use a sure release but the finisher will prefer using no release.

It is now known that stearates, moderately and carefully used as



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mold releases can be coated with a good degree of success. Silicones should never be used. In fact, silicones cannot be used in any molding plant where a part to be decorated is being molded. Sooner or later silicones, if present in the plant. will penetrate the air to such an extent that they will contaminate all other moldings in the same plant.

Discard First Molded Parts; Release Agent on Surface

The first new parts that are molded should be discarded. It is almost certain that the first break-in parts will have such a degree of surface contamination that they could never be successfully finished. To attempt to do so—and many molders do—will surely give the finishing department some ill-deserved headaches and rejects. (Note: Cleaning molded parts of stearates, etc., calls for a rather lengthy discussion. It can be and is often done even on a production basis. Almost invariably this is a costly overhead factor.)

Once the mold has produced some plastic parts successfully, the release agent should no longer be applied. Even now there may be damaging traces of release agent on the part, and unless this is considered, no decorative coatings can be successfully applied. Now the molder becomes aware of all characteristics of the part—its weight, time cycle, size, etc.; these are characteristics that he must maintain. When these features are established and good parts are being produced, the new molded plastic parts can be delivered to the finishing department for application of the decorative coatings that have been specified and planned for.

The first or sampling run from a new mold always produces the molded parts from which the secondary tools are made. It is important that a complete history be kept of these parts—their size, weight, flow pattern, etc.; all have an effect on the finished part. Since the customer will also receive and approve the first molded plastic parts, there should be no deviations made in the future.

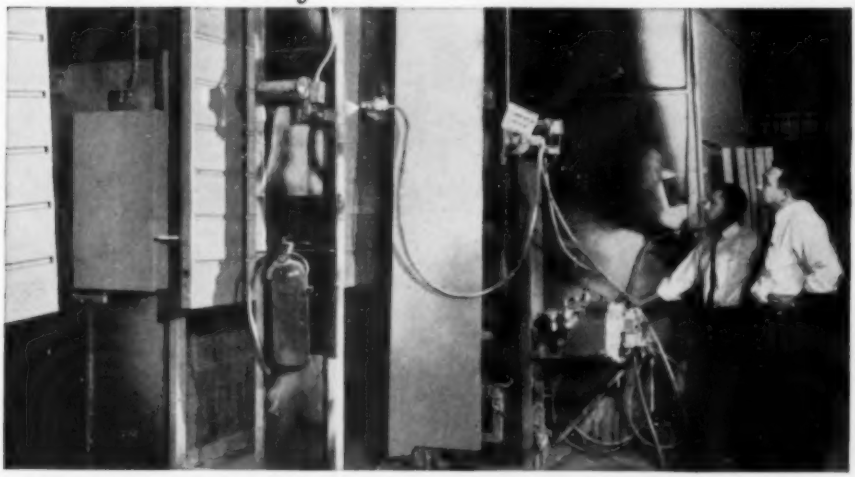
Finishing Tools Represent A Big Investment

Finishing tools represent a big investment for any molded plastic part. This is multiplied many times over if they are poorly made and if the parts have been poorly molded. The entire profits from a part can be lost in cutting corners when finishing tools are being made. It is definitely unwise to use molded plastic parts when one knows that the mold itself will have to be reworked—regardless of how small the alteration may seem. Opening a "gate" just a fraction, "beefing up" a rib here or there, venting to assure better moldings—all have their effect on paint breaks, grooves, etc.

Yes, the planning for finishing begins long before a molded plastic part ever reaches the spray room. It begins with a complete understanding of all problems involved —from designer to assembly and packaging. A complete and free-flow of information among the key personnel in all segments of the plant is needed to make the pro-

ASK THE MAN WHO USES NORDSON AIRLESS

"We cut our paint bill more than $12,000 the first 3 months!"

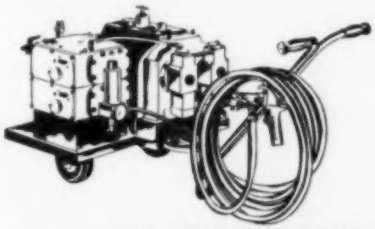


Mr. Briggs, left and Mr. Gering of Berry Door Corporation watch automatic spraying of steel garage doors

"Paint costs were getting out of hand. The sales department wanted a better finish on our metal garage doors, but we were also under pressure to hold the line, costwise. After a careful investigation we switched to the Nordson Hot Airless Spray System. We effected 45 percent savings in paint and at the same time increased coverage very substantially and improved appearance. Total savings are now running better than $4,000 a month.

This is a direct report from Mr. C. T. Briggs, Chief Engineer, and Mr. L. N. Gering, Production Manager of the Berry Door Corporation, Birmingham, Michigan, world's largest manufacturer of metal garage doors.

If you spray varnishes, paints, lacquers or other industrial coatings, it will pay you to find out if the Nordson System can provide savings and improve quality for you. Write Nordson Corporation, 55 Jackson Street, Amherst, Ohio.



Nordson Model 15000 Hot Airless Spray Unit is the most versatile "paint shop" developed for American industry.

NORDSON•ORIGINATORS OF AIRLESS SPRAY

For more data, circle 172 on colored card.

duction of molded plastic parts a profitable success. No one man has a corner on this knowledge. When each individual gives his best—this makes the whole job better in every way. Designer to engineer, to molder to finisher—these are important links that must be forged into a strong chain which becomes an effective and economical production system.

J. O. Ross Engineering Celebrates 40th Year

The J. O. Ross Engineering Div'n. of the Midland-Ross Corp., New York, N. Y., entered its 40th year of operation this year.

The company, organized as J. O. Ross Engineering Corp., started in 1921 with seven employees, headed by John O. Ross, a former Sturtevant man from New England.

Ross plant and offices in New Brunswick.

The company first specialized in ventilating systems for the paper industry, and drying systems for paper converting plants in the East. It expanded into other fields, notably the metals field. Today the company has two manufacturing plants in New Brunswick, N. J., and one in Los Angeles, and has sales offices in New York, Chicago, Boston, Atlanta, Detroit, Seattle, Los Angeles and Mobile.

Probably the one single development that influenced its horizontal growth the most, was the purchase of direct and indirect heater patents and designs in 1927. With these heaters and the accumulated knowledge of how to regulate and control the flow of air, the company was soon engaged in countless installations calling for the drying, curing and baking of products of all kinds. Many of these involved painted metal parts. Ross now engineers complete paint finishing systems for such applications, including metal preparation equipment; flow, dip, spray or electrostatic painting units; drip and flash-off enclosures, bake ovens, cooling equipment and conveyors for carrying parts through the automatic paint finishing lines.

The company became associated with John Waldron Co., New Brunswick, N. J., manufacturer of web and roll-handling equipment. Over the years Ross Engineering acquired the majority of stock of this company. In the metals field, in connection with the strip coating process, Ross supplies metal preparation and paint drying equipment, and Waldron supplies coating equipment and roll and strip handling devices such as unwinders and rewinders, accumulators, drives and tracking equipment. Working together, the two companies offer a highly automated strip coating facility from one source.

J. O. Ross Engineering merged with The Midland Steel Products Co. in 1957, and since that time has operated as a division of the Midland-Ross Corp.

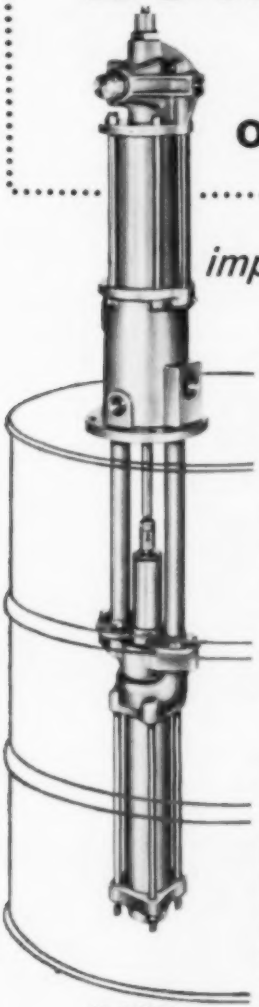
To supplement its engineering services, Ross Engineering maintains laboratory facilities at one of its New Brunswick plants. Here, customer drying problems can be studied and the effects of air flow and air impingement can be observed; and the effects of various air flow conditions at various temperatures can be measured and evaluated. Both drying, curing and baking cycles can also be studied, and such special equipment as radiant gas burners and infrared lamps are available for pilot plant testing.

One of the more recent developments to come out of the Ross laboratory is high velocity drying. High velocity drying directs heated air at high speed against traveling webs; it speeds drying time, increases production and lowers costs. It is now being used in the Ross-Waldron strip coating process, in drying paper, in drying printed grains and lacquer finishes applied to plywood, and in other drying processes.

We as a nation are one-third larger in customers and 50% richer per customer. This presents wonderful market opportunities.

Alemite VERSATAL LOW PRESSURE PUMPS

outperform all others...



Model 7884-A

improve your production and profit!

If you want a pump with dependable high volume, low pressure and exceptionally long life, this new Alemite pump is the best buy in the industry.

When your production line stops so does your profit! Protect yourself with a rugged, heavy-duty Versatal 7884-A Pump, so powerful it can serve 2 miles of pipeline! This dependable 4-to-1 ratio pump develops material pressure four times air pressure applied. It pumps from 55-gallon drums or paint vats. The submerged pump tube (air motor divorced from pump tube) retains possible by-pass of material within container, eliminates mess and waste.

Exclusive Alemite double-pump action draws material in . . . forces it out . . . simultaneously on both up and down piston stroke. Provides continuous flow of material under the most difficult operating conditions.

This Versatal Low Pressure Pump is only one of a complete line of heavy-duty pumps to fit your needs. For additional information contact your nearby Alemite distributor or write:

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Dept. BQ-101, 1850 Diversey Parkway, Chicago 14, Ill.

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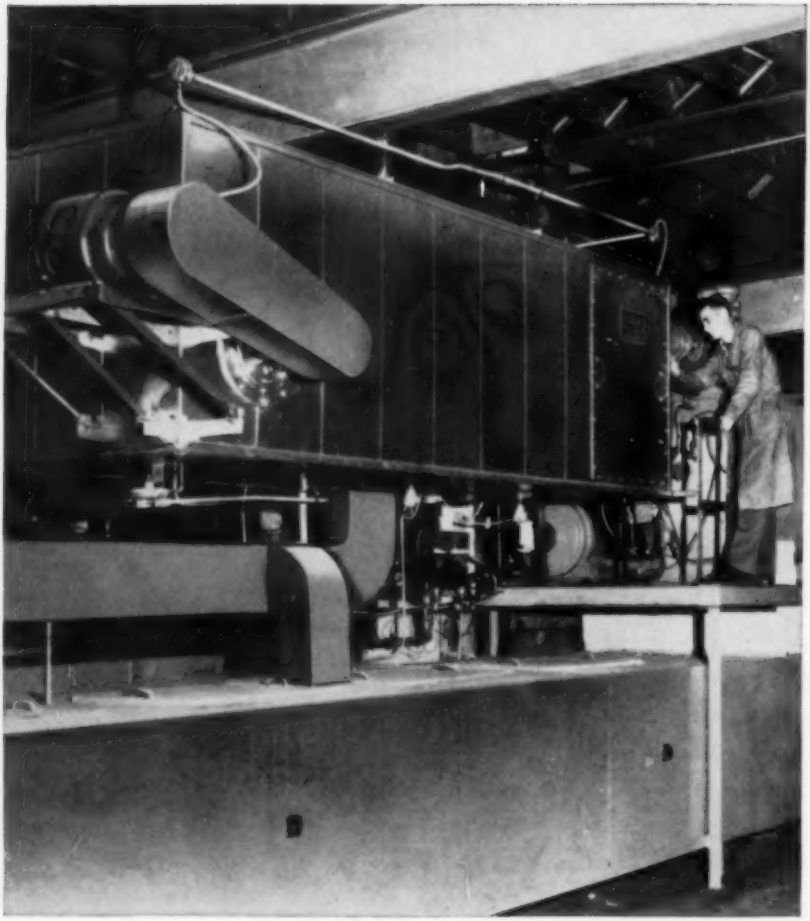
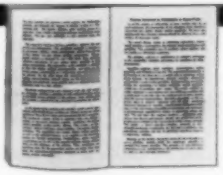


The Catalytic system on this continuous metal strip coating oven converts objectionable exhaust fumes into valuable heat energy which is released in the oven.

For more details *on the economies possible write Dept. B for this brochure. Or, give us a few facts on your oven exhaust problem so we can make specific suggestions . . . to you, or your equipment builder.*



That odor you smell is money escaping!

The odorous exhaust fumes coming from your ovens are probably costing you much more than the good will of your employees and neighbors. Usually these odors represent a wasted asset . . . a missed opportunity to lower your costs . . . through conversion of fumes to BTU's for return to the oven, use in plant processes, or as a supplement for heating plant make-up air.

Thousands of installations . . . on ovens and dryers for wire enameling, paint baking, metal decorating, paper printing and impregnating, organic coating and curing and many others . . . have proven the economy and feasibility of using objectionable oven exhaust vapors as money-saving fuels through Catalytic Combustion. In this proven process, all-metal catalysts and catalytic systems oxidize these gases by *low temperature, flameless combustion* to give you usable energy and an odorless, colorless discharge. Incidental benefits often include reduced fire hazards, simplified cleaning maintenance, healthier working conditions . . . and better community relations.

CATALYTIC COMBUSTION CORPORATION

4725 Fourteenth Street • Detroit 8, Michigan

A SUBSIDIARY OF UNIVERSAL OIL PRODUCTS COMPANY

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Processing and Coating WIDE METAL STRIP

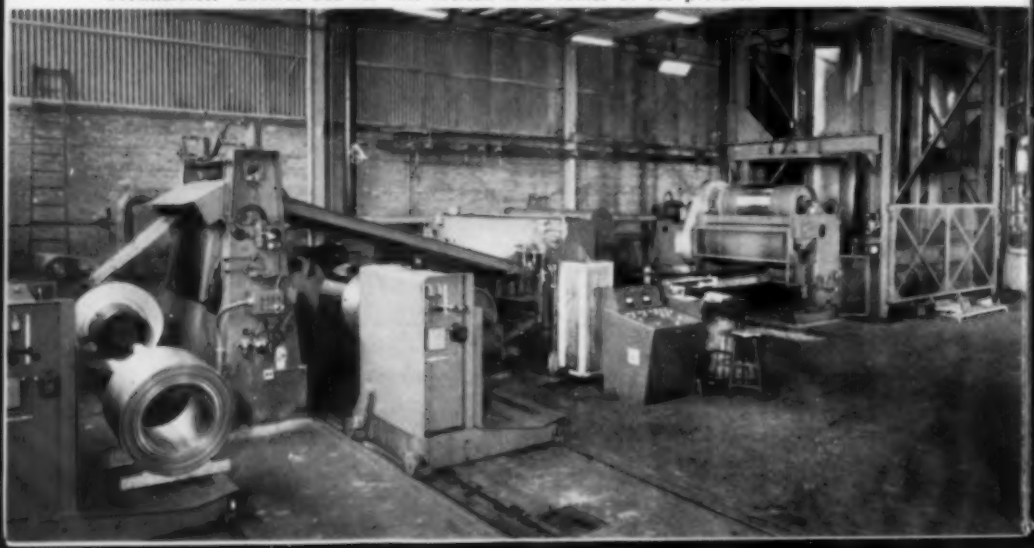
By *Richard M. Thornton, V. P.*
Litho-Strip Corporation*

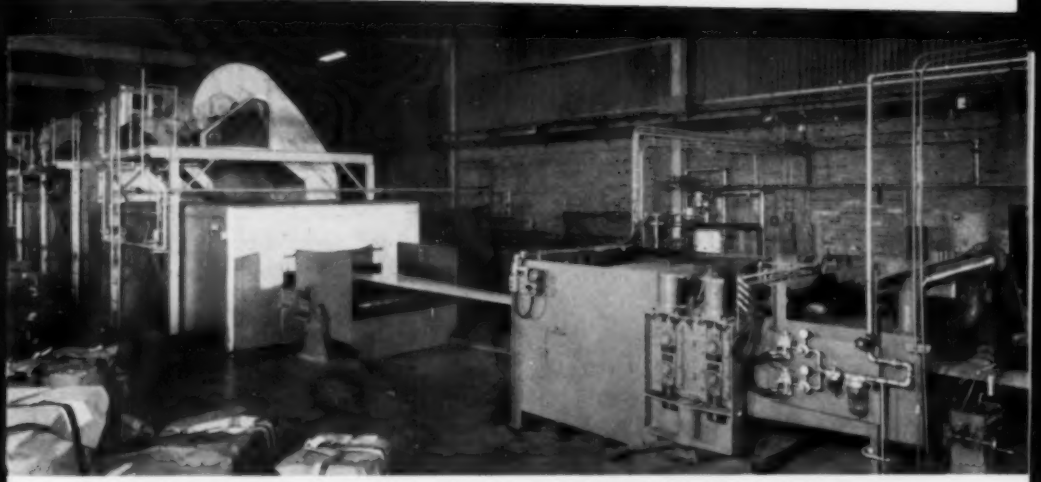
WITH THE ever increasing demand for prefinished steel and aluminum in the building and construction industry, and for manufactured products, the coating of continuous strips of sheet metal has become a more or less routine procedure. For relatively narrow strip, say up to 18-in. or 24-in. wide, conventional methods and equipment will produce good results; but the same cannot be said when it comes to coating wider metal strips.

Much research and engineering are involved in setting up a successful coating system for wide strip stock. While the principle of continuous strip coating remains the same, with extra wide stock there is an enormous increase in weight. This, in turn, poses problems in handling, in maintaining tension pressure, and in coating the strip. The equipment must be engineered and built to withstand the increased weight and pressure.

*4800 S. Kilbourn Ave., Chicago 32, Ill.

Unwind station where coils of wide strip metal are unwound. Two motorized trucks deliver unfinished coil to the unwind mandrels. The strip then passes around tension roller to enter accumulator. Control box for first section is in center of the picture.





Wide metal strip leaving zoned oven to enter cold water spray cooling machines and wax mist spray. Photograph, courtesy of J. O. Ross Engineering Division of Midland-Ross Corp.

Four Continuous Strip Lines For Aluminum and Steel

We have four continuous strip coating lines for prefinishing aluminum and steel in any width up to 66-in. Thicknesses of the metal range from 0.006 to 0.065-in.

In a custom continuous strip coating plant such as ours the equipment, methods and materials must necessarily be extremely flexible—to clean either aluminum or steel of the various soils, to etch the aluminum and to phosphatize the steel surfaces, or to omit the phosphate coating if desired.

The protective and decorative coatings we apply include alkyd, vinyl, acrylic, phenolic and epoxy-resin-based materials in every conceivable color. Sometimes the same color is applied to both sides of the strip; in other cases a different color is applied to the other side; or the order may call for color on one side and a clear protective coating on the other side. In still other cases two different resin-based materials must be applied to each side. The phosphate coating, as well as the dry film thickness of the finish coat, can be precisely controlled to meet any and all customer specifications. We have a quality control laboratory equipped to test for any type of soil, any surface preparation treatment, and for all kinds of finish coat testing.

Three Sections to the Wide Strip Coating Line

The wide strip coating line is operated by three men; it is divided into three sections each of which may be controlled by a single operator. The first section includes the two unwinding mechanisms, splicing or stitching facilities and tension roller.

The second section consists of metal cleaning and surface preparation, the roller coater and the oven.

The third section includes a tension roller, metal cooling, waxing and rewind equipment. While the entire system is automatically con-

trolled, individual control panels may be manipulated by each operator to modify or change operating conditions if the occasion demands it. The other sections automatically respond to any change that may be made in an individual section.

Motorized Trucks Load and Unload Heavy Coils

Loading a strip coating system with unfinished wide strip coils and unloading the finished metal strip coils, which weigh up to 20,000-lbs., must be fast and efficient, and capable of being handled safely by a single workman. This extremely heavy work must be done mechanically.

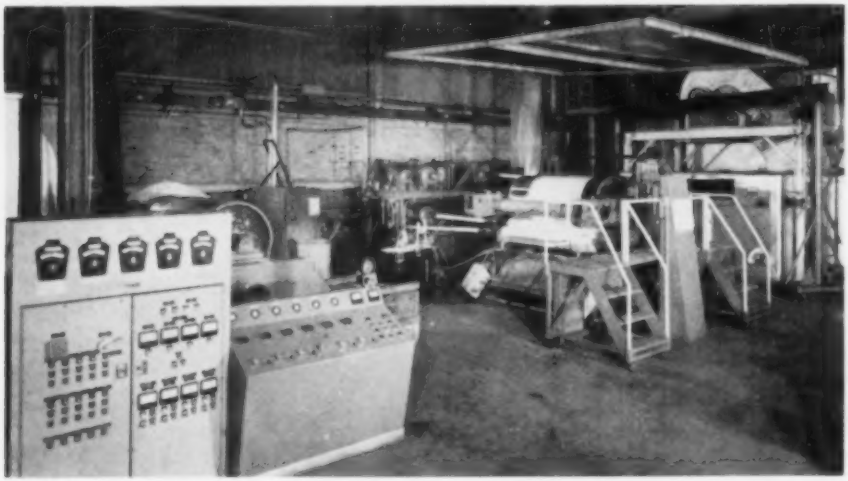
Electrically operated trucks capable of supporting 20,000-lb. coils run over tracks embedded in the concrete floor at right angles to the unwinding and rewinding mechanisms. They are used to transport the heavy coils to and from these stations.

The heavy coils of strip metal are delivered to the motorized trucks by an overhead crane. The motorized trucks are built to deliver these coils to the unwinding and from the rewinding mechanisms at precisely the right height and position for fast and efficient placement on and off the mandrels. These heavy coils could not be handled quickly nor efficiently by any other means.

Automatic Stitcher Splices Ends of Strip Stock

As the strip is uncoiled it passes through an automatic stitcher which joins the end of a new strip to the end of the previous coil. Let us take, for example, a 48-in. wide

Roller coater is in center; oven is at right. The chromic acid tank is at extreme left, with central control panels for second section of the system. One panel controls the metal cleaning tank setup. Photo, J. O. Ross Engineering Div'n. of the Midland-Ross Corporation.



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THERE'S A BETTER WAY TO REMOVE PAINT

. . . even acrylics, lacquers, epoxies, enamels — practically all paints and tough finishes. It's by using Wyandotte MERSOSTRIP®, a complete alkaline paint stripper for tank use (all you add is water). MERSOSTRIP contains accelerators to rapidly, effectively disintegrate paint. And MERSOSTRIP makes long-lasting solutions that rinse freely. If you're interested in reduced immersion times and greater operating economy, call your Wyandotte representative and ask for a free MERSOSTRIP demonstration.

Wyandotte Chemicals

J. B. FORD DIVISION

WYANDOTTE, MICHIGAN • LOS NIETOS, CALIFORNIA • ATLANTA, GEORGIA

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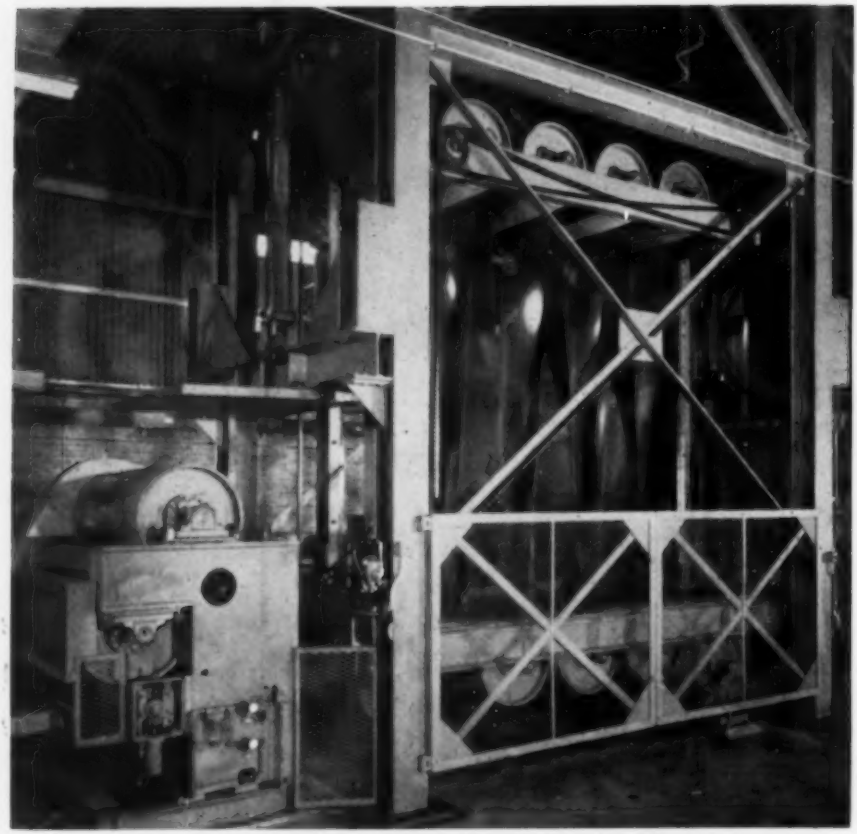


The accumulator at beginning of line, with tension roller at left. The first stage tank of metal cleaning and phosphatizing system is just at right of the accumulator.

strip which goes through the system at a speed of 120-ft. per minute. The accumulator provides a time lag of 1½ minutes for the stitching operation. All of this time is never consumed; the splice is often made in less than one minute.

Before the strip enters the accumulator it passes around a tension roller which, in conjunction with a similar roller at the end of the finishing line, exerts a pressure of 100-lbs. per inch on the metal strip. The accumulator consists of eight rollers, four above and four below.

The four weighted rollers below are mounted in a carriage which is free to move up and down to release an accumulated supply of strip while the end splicing is being made. The end result is that the travel of metal strip continues

through the system (from unwinding to rewinding) without the slightest interruption. Concrete foundations under the accumulators are capable of supporting a total load weight of 52,000-lbs.

Steel Is Cleaned; Phosphatized; Aluminum Is Cleaned; Etched

As steel strip leaves the accumulator it passes through a 5-stage metal cleaning and phosphatizing tank immersion system. In the first tank an alkali cleaner at 165° F. is used to clean both sides of the metal; this is followed by a hot water rinse at 165° F. In the third tank it passes through a zinc phosphate solution at 135° F., followed by a water rinse at room temperature. In the last tank it is immersed in a chromic acid solution at 145° F.

At the exit end of each tank, rubber squeegee rollers remove any solution or rinse water from both sides of the metal to prevent any carry-over of the solutions or water into the next tank. The rubber squeegee rollers on the chromic acid tank remove all of the solution on both surfaces; and at a temperature of 145° F., the metal surfaces will dry sufficiently, while traveling a distance of 70-ft., for the application of enamel.

For cleaning and treating aluminum strip we use a mild alkali cleaner; then hot water rinse, an aluminum etchant and a mild chromic acid solution—all at the same temperatures as used for steel.

The equipment in this plant includes an overhead crane and motorized trucks for moving big coils of wide strip steel and aluminum; also, facilities for giving the metal surfaces different treatment, and for applying a variety of protective and decorative finishes on one or on both sides, in the same or in different colors, and baking the rolled-on paint coatings.

Roller Coater Spreads Enamel Over Both Sides of Strip

Coating materials are applied as the strip stock travels through a roller coater that can be set up to coat one or both sides of the metal with the same or different colors or types of material. The coating material is pumped directly from the drum or container into the roller coater reservoir pans by means of a special drum head equipped with a pump and an agitator or stirrer which keeps the enamel well mixed and the pigment in suspension.

Flash-off Time; Bake in Three-Zone Oven

As the strip leaves the roller coater it travels five seconds in the open air to allow for a flash-off period for the evaporation of volatile solvents before it enters a gas-fired convection oven.

The oven has three zones, each of which has temperature controls up to 750° F. This makes for flexibility for the various types of coating materials. It is possible to extend the flash-off period, if re-

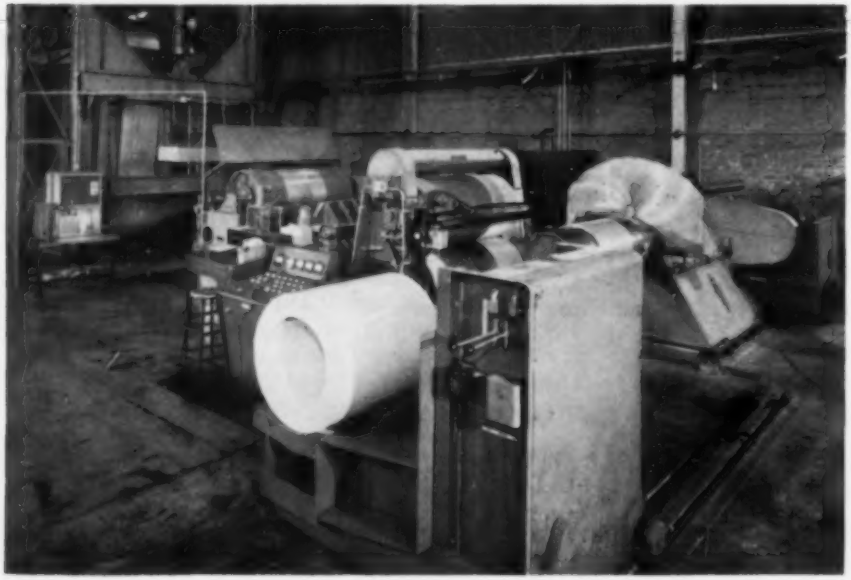
quired, by turning off the heat in the first zone, and allowing the exhaust in this zone to accelerate the evaporation of volatile solvents. Then it is possible to provide either a shortened or longer baking period in zones two and three, or a longer bake by using the prescribed temperature in all three zones. The coater is also equipped with a mechanical tracking device which keeps the wide strip exactly in the center of the oven.

As the strip leaves the zoned convection oven it enters an accumulator which is a duplicate of the one at the start of the line. Then it passes under a true North daylight lamp for definite color inspection. Precise color matching is highly important in strip coating.

Tension Rolls; Cold Water Cooling; Squeegee; Wax Mist

The strip then goes around a tension roller before it passes through two cold water spray cooling machines. Each cooler has a pair of rubber squeegee rollers to remove any excess water. Just before the strip enters the rewind station it passes under a series of nozzles which extend across the width of the strip. These nozzles apply a thin mist coat of liquid wax to the top surface. As coils of coated strip are completed, a power shear cuts the strip to start the next coil.

The rewind station. At extreme left, the strip leaves a zoned oven to enter the accumulator, then passes under a true north daylight inspection lamp. Next, to right is the tension roller, two cold water spray cooling machines, the wax coater and rewind mechanism. Note motorized truck to deliver finished metal strip coils to the overhead crane.



For more data, circle 176 on colored card. ——→

The man from "Minnesota" was here...

Result: A big competitive advantage for Insulite Primed Siding

This is what happened when a manufacturer asked Minnesota Paints to help them give a new product some real advantages over competitive items.

The company was Minnesota & Ontario Paper Co. The product was a line of pressed-fiber boards for exterior siding. M&O had developed a way of pre-sealing the boards with a special prime coat.

Minnesota Paints specialists went right to work with formulations developed by Minnesota & Ontario. The result was a tremendously efficient priming process that gave M&O three big sales advantages:

- The factory applied prime coat saves the user both paint and labor in finish painting. One coat finishing is frequently possible.
- The paint job lasts longer, because the special primer is scientifically applied, and has tremendous adherence qualities.
- The siding boards are safe from moisture damage during shipment and during construction—which can mean huge savings to builders.

Advantages like these can be real profit-builders in any business that uses product finishing. If you use paint and protective coatings, let the man from "Minnesota" go to work for you . . . without charge or obligation. He is backed by a modern technical laboratory fully equipped to meet up-to-date requirements at the factory level. As a result more and more manufacturers are discovering how having the proper finishing here pays off in extra sales. Why not see if Minnesota Paints specialized knowledge can help improve your profit picture.

In test after test, Insulite Primed Siding with just one coat of Minnesota's exterior paint provided a durable long-lasting finish.

Minnesota PAINTS

MINNESOTA PAINTS, INC.

Minneapolis 15, Minnesota

Plants: Minneapolis • Fort Wayne • Atlanta • Dallas

Personnel Changes at Iowa Paint Mfg. Co.

The Iowa Paint Mfg. Co., Inc., Des Moines, Ia., has announced a number of appointments and reassignments of executive personnel.

Nate Ruben, who has been General Manager of Goldan Enterprises, is now Assistant to the President.

Nate Ruben; Walter Hecker; Keith Green

Walter H. Hecker, who joined Iowa Paint in 1949 and who was manager of its Des Moines plant until 1959, is now General Manager of Decatur Chemical at Decatur, Ga.

J. D. Littlewood, V. P., will head the new Bid & Contract Division, concerned primarily with government bid business and private label accounts.

Gene Gereke, Sales Manager, assumes responsibility for the entire field sales organization, covering Iowa and seven surrounding states.

I. R. (Ike) Beattie becomes Assistant Sales Manager.

E. T. Leifson has been made Controller of the company. He will continue to serve as Secretary.

Keith Green, who has been Store Supervisor in the Goldan Division, was named to succeed Mr. Ruben as Manager of that Division, with headquarters in Atlanta, Ga.

Pyroxylin Products, Inc. to Have New Plant in Penna.

A new plant for Pyroxylin Products, Inc., is nearing completion in Kimberton, Pa. It will replace the former plant at Paoli, according to Paul H. Yoder who will manage the new operation. The company, whose headquarters is in Chicago, owns over 14 acres of land located on Cold Stream Road in Kimberton.

Yoder points out that, in addition to some existing structures remodeled to serve as offices and storage, there are three new buildings of reinforced concrete and brick construction in which hot melts and wax concentrates, as well as lacquers and other solvent-type coatings will be manufactured. Partial operation is expected to get under way before the end of October. Under full production, the plant will have about 25 employees.

There will be approximately 16,000-sq. ft. of floor space in the three new structures, the largest of which is in three equal units separated by fire walls. New equipment has been installed and will be augmented as expanding operations require.

Synflex Products in Louisville

The Synflex Products Division of Samuel Moore & Co., Mantua, Ohio, has appointed the Baker-Bohnert Rubber Co., 1311 Bernheim Lane, Louisville 10, Ky., as an authorized master distributor to stock its complete line of nylon industrial hoses and polyethylene, vinyl and nylon tubing.

Appointments at Hercules

Two new managerial appointments in the Coatings Division of Hercules Powder Co.'s Polymers Department were announced recently.

The new appointments are:

James R. Yeager, Assistant to the Director of Coatings Materials Sales.

Gregory N. Bruxelles, Manager Nitrocellulose Sales.

Mr. Yeager, who has been manager of nitrocellulose sales since 1956, brings to his new post a broad background of experience in both sales and production. Starting as a chemist in 1923 at the Experiment Station, at that time located in Kenvil, N. J., he was transferred to the Parlin, N. J., plant in 1924, where he subsequently became nitrocellulose superintendent. He was transferred to the Home Office in 1943 as supervisor of lacquer marketing.

Mr. Bruxelles, who joined Hercules in 1947 as a chemist upon graduation from Harvard, has extensive experience in coatings research as well as sales. From 1947 to 1956, he was at the company's Research Center where his assignments included work leading to the more extensive use of lacquer by industry. During the latter two years, he was supervisor of the coatings laboratory at the Research Center.

for paint spray booths

PAINT GUARD

a new, improved coating

A ten minute demonstration will show you that PAINT GUARD is:

ready for use without dilution
easy to apply and remove
has high light reflectance but
low specular gloss
won't pick up on workers' shoes

In addition, PAINT GUARD is economical, non-combustible, and suitable for sandwiching.

For more information or the demonstration that will solve your spray booth coating problems, write or phone one of the offices listed below.

KELITE CORPORATION

● Los Angeles 12 ● Chicago 45 ● Berkeley Heights, N. J.

In Canada: S. F. LAWRASON & CO. LTD.

For more data, circle 177 on colored card.

Coatings of the Future... TODAY

BY
WILLIAM R. BROOKS

IN THE PAST 50 years, man has advanced from the horse and buggy to the fringe of outer space. Spray equipment manufacturers and chemical laboratories have kept pace with these advances by developing the necessary equipment and materials to coat the buggy, the car, the airplane, and now rockets.

The speed at which these developments have taken place in the last few years has been such that most people do not realize the possibilities these new products offer in manufacturing and design.

The chemical coatings and resins that we are talking about come under various names. They are called catalyst paints, chemically accelerated coatings, acid-cured resins and other equally confusing and exotic names. We prefer to group all resins that may be called by any of the above or other names into one general group: *Plural Component Resin Systems.*

Plural Component Resins: Epoxies, Polyesters, Urethanes

Plural Component Resins are those resins that will form a cured surface or finished product by the use of two or more resins or chemicals which, when added together and intimately mixed, form the cured surface or finished product by reacting together without the need of evaporative solvents, oxygen or external heat. [*To page 64*]

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This article was intended to encompass the three basic categories -- Epoxys, Polyesters and Urethanes. But the information necessary to place each one in its proper perspective would have made the article too long.

I have taken the liberty of covering only Epoxy systems in this article and would like to elaborate on the other two systems in subsequent articles. — William R. Brooks.

The Spee-Flo Company

Announcing A Most Significant Patent Grant For The Finishing Industry!

What it Is

The H-Gun principle utilizes a small, specially designed pre-orifice in combination with the airless spray tip. Only Spee-Flo can offer this patented exclusive feature.

What it Does

The H-GUN produces a full feathered spray pattern with total atomization. It provides complete spray gun control eliminating flooding and "tails". This is essential for quality finishing.

What it Means to the User

The H-GUN produces quality airless finishing to the most exacting requirements. The H-Gun and the Spee-Flo HydraAirless will produce time and material savings averaging 30%. The H-GUN is used by leaders in the wood and metal products manufacturing, maintenance and construction industries. Write the Spee-Flo Company for documented reports of successful installations in your industry.

UNITED STATES PATENT NO. 3,000,576

has been issued on the H-GUN — the invention that produces quality Airless Finishing . . .

Patent No. 3,000,576

6614 Harrisburg Blvd. The Spee-Flo Company THE GUN Houston 11, Texas

For more data, circle 178 on colored card.

The three basic chemical families that react in this manner are:

1) Epoxy Resins
2) Polyester Resins
3) Urethane Resins

The material handling and application of these resin systems fall into particular categories; we will now examine one of these remarkable coating systems to see where it may fit into your manufacturing process.

Epoxy Resin Systems: The original epoxy resins were used in a modified form as a resin additive to conventional alkyd and urea air-dry or baking systems. The extra resistance to alkalis and moisture penetration made them a natural for the growing automatic washer industry after World War II. With the tremendous corrosion problems on external steel structures, such as storage tanks, pipe lines, and structural steel, this extremely weather resistant coating soon made its mark in the exterior corrosion field.

In all of the above mentioned cases the epoxy modified coating system is handled with conventional spray equipment. If a higher polymer type epoxy system was used in that time, it was pre-mixed with a catalyst and had a long enough "pot life" so as to eliminate the need of any catalyst type equipment. This type of coating is still being used to a great degree today with exceptionally good results.

Modified and Improved Epoxy Systems

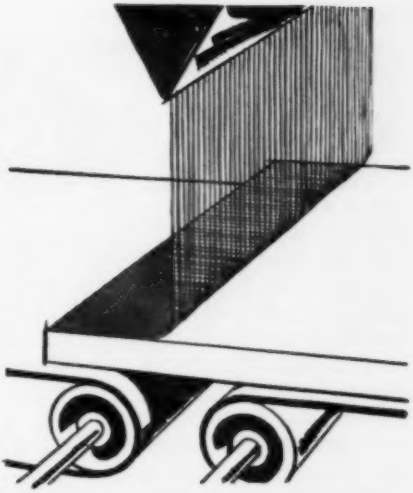
The modified epoxy systems in use for industrial finishing are used primarily as primers, allowing conventional lower priced enamel systems to be used as a cover coat. Early attempts to use them as a finish coat on white appliances were not successful due to the yellowing nature of the epoxy resin itself causing discoloration. The added protection and weathering of these coatings made them practical only for extreme corrosion problems, due to their high price.

Today we find the availability of much improved epoxy resin systems, namely the 100% solids, non-volatile systems. By 100% solids, non-volatile we mean liquid resins that contain no solvents. If one wet mil is applied to a surface you will have one dry mil coating thickness on that surface, following the curing. The chemical resistance and coating life of this type of resin system far exceeds that of other paint or modified epoxy systems.

When no solvents are used, thicker protective coatings can be applied better, faster and with stronger physical properties. Also, ambient or sub-strata temperatures would have no detrimental effect because there was no solvent balance that could have been thrown off to cause pin holes.

I would like to explain the improved physical properties by comparing the 100% epoxies and conventional paint to different mesh screens. For example, the epoxy film would be a 200-mesh screen and the conventional paint would be a 60-mesh screen. The 200-mesh screen is so tightly woven that it keeps out moisture, sunlight and other film destroying elements. Basically, it is the molecule to mol-

OPERATION "CURTAIN COATER"!



NEWEST ADDITION TO SPRUANCE ADVANCED RESEARCH

Representing an entirely new finishing principle, this Curtain Coater marks another step forward in Spruance research and development. New finishes are tested, Spruance custom finish service extended and new techniques developed. It also points the way to greater speed in application and important savings in materials.

In joining other Spruance laboratory equipment, including airless and dual-headed sprayers, the Curtain Coater makes possible advanced investigation of newer glamour finishes . . . polyester, epoxy, polyurethane, butyrate and acrylic.

Spruance Advanced Research is at your service . . . always ready to help you benefit from newest finishes and latest finishing techniques.
For full details, manufacturers on the eastern seaboard, write:

Spruance

fine finishes

THE GILBERT SPRUANCE CO.

Philadelphia 34, Pa. • Winston-Salem, N. C.

Wood Finish Originals • Metal Finishes • Maintenance Paint Products

For more data, circle 179 on colored card.

ecule fusion that ties the coating together, giving an almost perfect film.

Early Epoxy Systems, and Those Available Today

The original 100% epoxy systems were handled as high ratio system—100 parts of resin to one, two or three parts of amine catalyst. To handle these materials properly you would need very exact metering and dispensing equipment priced in the $12,000 to $18,000 category. Naturally this price range precludes any widespread use of this resin. The complicated design of this metering and dispensing equipment also involves the use of high priced labor to operate and maintain the equipment.

Today 100% epoxy systems are available called "adducts"; they greatly simplify the equipment and application requirements and should allow for wider usage of this wonderful resin system. An "adduct" system is a partially compounded 2-pot resin system. One resin has the catalyst already mixed in and will remain stable until the other resin, which has different molecular construction, is mixed in and causes the cross linking and ultimate cure. "Adduct" epoxy resin systems can be handled in a ratio range of from 1 to 1 to 5 to 1, with a greater margin for error—and this is what simplifies the equipment.

Problems of Viscosity; Mixing or Blending the Resins

Because these resins are usually very viscous, running from 5000 to 100,000 centipoises, they do not lend themselves to spray application very readily. Due to their high viscosity and atomization limitations, a thin smooth coat is sometimes difficult to obtain. Heat can be used on the resins, just as with paint, to reduce the viscosity, thereby enabling standard spray nozzles to apply them without too much difficulty.

Today the bulk of the 100% solid systems are used for various casting or potting applications. In this case, the material is not sprayed but is extruded or poured into cavities or molds to actually form the complete products. I believe that the greatest usage of this casting type resin system is in the electrical or electronic field where the dielectric properties of epoxies prove invaluable.

The necessary equipment to spray the 100% epoxies consists of a 2-component pumping and metering system, a spray gun built-in mixing system, hoses and a heating system if necessary.

Early attempts at equipment design for these resin systems are probably what held back the wider usage of the epoxy spray systems. People attempted to meter with pressure pots and tried to accomplish the mixing or blending of the 2-component resin with slightly modified paint spray guns. Although this was a very simple approach to the problem, this type of system is difficult and not refined enough to give controlled metering and intimate mixing which are absolutely necessary to produce a proper coating.

It was only after the resin and equipment people sat down and dis-

UNIFLO STAINS

MAC'S UNIFLO STAINS are finely dispersed pigment stains which can be applied by spray or brush to close grained woods such as Poplar, Gum, Maple and Birch.

ADVANTAGES

1. They possess excellent flow out properties and do not require wiping.
2. Give appearance of a wiping stain and impart very good color uniformity to the wood.
3. Air dry in one hour.
4. Can spray chairs and other pieces with hard to reach corners without showing white lines.

Order a 5-gal. can at drum price and convince yourself.

"Eighty-five Years of Service"

The Lawrence-McFadden Co.

Headquarters for Fine Finishes Since 1875

7430 STATE ROAD **PHILADELPHIA 36, PA.**

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cussed their individual limitations that progress was made. The technical jump from conventional solvent-based paint systems to 100% solids epoxies for the equipment people can be compared to the jump from airplanes to missiles by airplane manufacturers. It involved elaborate tooling and engineering; also there was some fear that a change in the resin system would throw out all the work that had been done. To meter-mix and also to spray, using equipment that would be low priced, maintenance free and easy to operate—this was the goal and the need of the industry.

Today you can buy 100% epoxy resins that are formulated for spray application—and you can also buy the equipment to apply them.

One development that remains is the education of users on the complexity of both the epoxy resin systems and the equipment. The spray technique of the operator, the temperature controls necessary, and good housekeeping—all are points that have been repeatedly stressed for any good paint application. In using 100% epoxy resins and the necessary equipment, the above points are a must. There is no place for partial training and partial maintenance.

Mistakes in Handling Can be Very Costly

For example, a simple mistake of switching resin containers, even after flushing out the equipment, will still cause an inter-reaction of the resins and plug up the equipment. Once these resins catalyze and cure they are almost impossible to remove. After all, it stands to reason that if they can be easily cleaned off equipment they can also be easily "cleaned" or broken down on any surface you want to protect. Be prepared to put the necessary time, training and expense into your epoxy system. Figure these costs in evaluating a switch to this type of system, from your conventional coating.

If you find you have a place in your line of manufactured products for the 100% epoxy resin systems, then you will be able to offer your customers a product with the coating of the future—today.

Many Concerns Now Use Epoxy Resin Systems

Many concerns are already using epoxy resin systems on some of their products, either as a finish, an adhesive, or both. For example, one major truck manufacturer is building stainless steel truck bodies lined with a polyester, fiberglas laminated. To effect a permanent bond between the laminate and steel skin, an epoxy system was the only resin that would both protect and adhere one to the other.

Any product that by nature has a soft, or easily damaged surface can, and in many cases does, utilize epoxy finishes to obtain the hard surface necessary to protect them. Leathers, woods, polystyrene and urethane foam products are good examples.

Metal products, subject to extreme abrasion, such as vending machines, can use epoxies for a primer or interior coating. As a coating for wire or wire windings, epoxies have no equal.

Top-Selling Progress Fixtures Go To Market In Cosden Finishes

As a pacesetting company in the highly competitive lighting field Progress Manufacturing Co., the world's largest manufacturer of residential lighting fixtures, must have finishes with high sales appeal and low application costs. Cosden meets these requirements not only with "showroom" finishes but also with on-the-spot service and up-to-the-minute product development.

One-coat baking enamels in several different colors designed to take the same bake helped production scheduling by making use of a common conveyor and oven. (see illustration) Clear-copper, Clearbrass and Clearchrome — Cosden's absolutely non-fading finishes were developed rapidly to help Progress keep abreast of competition. Finishes applied by hand spray, dipping and electrostatic systems all conform to high conveyor speeds and fast bakes.

These few examples of what has been done for Progress only hint at the many ways Cosden can help you. Write today —your inquiries on finishes and application procedures will receive prompt attention.

COSDEN PAINT COMPANY

BEVERLY NEW JERSEY

For more data, circle 181 on colored card.

EDITORIALS

Evaluation of Finishes By Comparison

★ Often it is necessary to start up the finishing operation on a new product without having sufficient time to field test that product for experience. How do you determine whether a finish or protective coating will do the job if you haven't been able to field test it?

There is a logical approach to such a problem. One plan is to devise comparable tests (evaluate by comparison) that will approximate the atmosphere and exposure. Determine the type of chemical fumes involved, use above and below average temperature extremes to accelerate attack, and evaluate the trend of results.

Rapid and extreme corrosion of the test section will indicate that the situation is chronic and special protective coatings are in order. This doesn't answer, of course, if a test-coated steel beam will last for 20 years. However it will certainly indicate the proper steps to start it safely on its way.

This same approach can be helpful in determining how well a new finish will hold up on any new product. List the general requirements that may be expected of the product—for example, items such as resistance to detergents, alcohol, cigarette burns, bending, reverse impacting, abrasion and so forth. From these requirements devise certain comparable laboratory tests that will approximate the exposure indicated. For example, immersion in a 1% detergent solution (hot perhaps) rubbing with alcohol or solvents to determine degree of resistance, exposure of a painted panel to a burning cigarette in contact with the surface until it burns out, measured bends over a mandrel and measured reverse impacts, rubbing of a painted panel with a coarse, dry cloth, etc.

Once these tests have been devised, run at least two samples of material through these requirements at the same time. By doing this in one series of tests you will establish a standard, good or bad. If they are both bad you can run an original sample of one of the bad materials with a new sample and determine if the new sample is an improvement. If the original samples both turn up good, or perhaps if only one is good, one of the good ones may be run with a new sample to see if further improvement has occurred.

After several run-throughs with samples, one or (we hope) two will show up as being better than the others tested. This sets up a double

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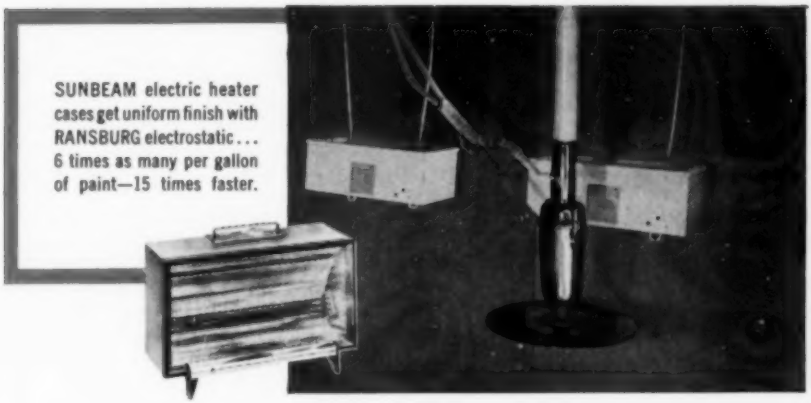
★ *Guest Editorial . . . Many readers can write an excellent editorial—two or three paragraphs that present a timely suggestion or valuable idea which will stimulate thought on a live subject. The Editor welcomes guest editorials and pays for those used.*


SUNBEAM electric heater cases get uniform finish with RANSBURG electrostatic... 6 times as many per gallon of paint—15 times faster.

"Paint Mileage Leaps 500%... Production Upped 15 Times" Reports ENAMELED STEEL & SIGN CO.

Curt Simmons, President, ENAMELED STEEL & SIGN COMPANY of Chicago, describes results with RANSBURG Automatic No. 2 Process Electro-Spray: "We first painted cases for the new SUNBEAM portable electric heaters with air hand spray at the rate of 200 pieces per day using 6 gallons of paint. Now, with RANSBURG electrostatic we've increased production 1400% to 3000 pieces daily with only 15 gallons of paint." An increase of 500% in paint mileage! *What would savings like this mean in your finishing department?*

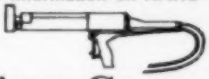
QUALITY IMPROVED WITH RANSBURG ELECTRO-SPRAY

Sags and runs, a problem with the air hand spray, have been eliminated with the automatic electrostatic equipment. Mr. Simmons adds: "Now we achieve a uniformity over the configurated area which wasn't always possible before. We know the 50,000th piece will turn out the same as the first."

ENAMELED STEEL—sold on the efficiency and versatility of RANSBURG Electro-Spray—uses 14 automatic No. 2 Process units to meet the heavy demands of their diversified, high volume production.

NO REASON WHY YOU CAN'T DO IT TOO

Manufacturers—large and small—are reporting similar savings in paint and labor with increased production. If your volume doesn't justify automatic electrostatic equipment, perhaps the RANSBURG electrostatic hand gun will help cut costs in your finishing operation. Write for our new brochure showing actual in-plant production photos, savings figures and detailed information on RANSBURG No. 2 Process Electro-Spray.



RANSBURG

RANSBURG Electro-Coating Corp.

Box 23122, Indianapolis 23, Indiana

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For more data, circle 182 on colored card.

source of supply which is always good for more reasons than one. At this point, if the pressure is on to get going, it is reasonably safe to start because you will be using the best finishing material estimated to do the required job.

Some problems are bound to come up as production progresses where perhaps some requirement was overlooked or possibly not realized at the time of the test. Again, by using comparison, you may, test new samples against the old standard material in use in production using newly devised tests to overcome the unexpected deficiencies; then you will have a means of judging performance of the new sample. Knowing that the old standard will not meet the requirement, the big question will be: Will the new sample pass the test? Comparatively speaking . . . . . we hope so.—*F.W.Porter.*

Can Coatings (Linings) Available in Variety

★ The lowly tin can has come into its own. Today some 2200 products, from beverages to motor oil are packaged and sold in metal cans. This makes can manufacturing big business. To the consumer there is nothing unusual about this, but to the can manufacturer it is not so simple.

The tin can for foods is a highly complex structure. The common corn can has a body about 100th of an inch thick. Next to this, inside and out, is a very thin layer of tin—10,000th of an inch thick. However, in 99% of the cases this layer of tin by itself is not sufficient protection. Therefore, on the inside, next to the corn, is a layer of enamel. Different canned beverages and foods, as well as other products, require a different type of lining material to protect the contents from contamination and discoloration—and to preserve and maintain flavor.

The ideal can lining must be nontoxic, free of any odor or flavor, adhere well to the surface; it must be adaptable to the flexing of the metal when the can is fabricated, remain unaffected by the canner's process, withstand distortion from bumping or falling, and be economical.

Until now most can linings have included oleo-resins, epons, vinyls and phenolics. Oleo-resins have been used as beer can base coats; vinyls for beer can top coats, and phenolics for specialties such as fish and dog food.

While tin can packaging has been standardized, obviously the lining end of the business is very diversified. However, can linigs are well on the way toward standardization. Now a single coating material, based on a polybutadiene polymer which is synthesized from monomer obtained from oil, has been developed.

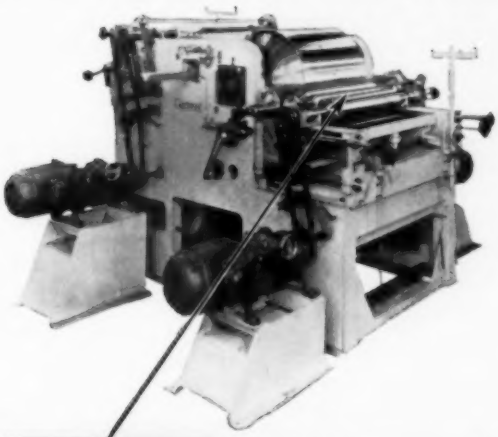
Tests conducted over seven years in the field indicate that this lining material can be satisfactorily used as a sanitary enamel, corn enamel, beer-can base coat — and, under proper baking conditions, even as a beer-can top coat. Here may be the beginning of a start toward greater standardization in lining 5-gallon cans, and 30 and 55-gallon drums to reduce lining inventories and to promote more simplified operation.—*C.C.*

This is Needed For a Successful Finish

★ What determines the success or failure of a paint, varnish, lacquer or enamel finish? The answer to this question cannot be found in a single word nor in one sentence. Too many variables are involved.

A few of the influencing factors would include: 1) the type of product, 2) the material of which it is made,

Another GASWAY strip-coater FIRST



HERE'S THE SECRET OF HOW THIS PRECISION COATER SHAVES DOWN STRIP COATING COSTS!

PERFECT CONCENTRICITY enables Gasway coaters to precisely control film thickness in continuous strip coating operations. This is because rolls are precision ground on live centers and actually revolve on the same centers in the coater. The perfect concentricity results in the most highly accurate metering of film thickness available today. This feature enables you to get uniform coating results with minimum paint film thickness. Thus large savings in paint costs are made every operating hour.

Running the coating rolls on centers instead of journals also permits changing rolls in a minute or less. This means less down time and practically eliminates wasted strip.

Each roll is driven by an independent variable speed drive not connected to the frame. This, plus chatterless multi-groove drive, eliminates vibration in the coater and produces smoother finishes.

Get all three important results by using the new Gasway precision coater: Cut down paint costs . . . Get smoother finishes . . . Eliminate excess waste and down-time.

Get all the facts about this superior strip coating machine.

SEND FOR COMPLETE INFORMATION

. . . Complete kit on Gasway strip coating features descriptive literature, case histories and pertinent detailed information.

Send for your copy today.

GASWAY CORPORATION
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Phone: SHeldrake 3-1414

Look to Gasway for experience and know-how in high production strip coating.

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3) the end use, whether it will be used out of doors or indoors, 4) the kind of treatment or wear to which it will be subjected. These are just a few of the things that will help to determine the type or resin base that would be most desirable in a specific finishing material.

Formulation of the material will be governed to some extent by the method of application to be used (for example, hot, cold or electrostatic spraying, dipping, flow coating, curtain coating, roller coating, dip-whirling, tumbling, etc.), physical layout of the user's plant, the equipment and baking facilities, and so on.

Correct cleaning and preparation of the surface to be coated is definitely a must. An improperly prepared surface can and usually will cause a finish failure, regardless of the type of coating material used, or how well it has been formulated, or how carefully it has been applied.

The paint supplier holds one key and the user holds a mating key. Both keys are needed to unlock the secret to a successful finish. The formulator makes the rules, based on his knowledge of all of the influencing factors. Then it is up to the user to carry out those rules faithfully. Close cooperation between the supplier and the user is the first step toward a successful finish.—*Brownie.*

Products Must be Sold; That's Urgent

Equipment, materials and methods of finishing your product change so rapidly that only the alert can stay abrest of what is going on. The fundamentals of surface preparation, such as the cleaning and phosphatizing of metals, requirements for good adhesion, correct drainage of clean-

— of PRIME Consideration!!

If you finish . . .

AIR CONDITIONERS
APPLIANCES
ARCHERY EQUIPMENT
DIAL PLATES
DIE CASTINGS
ELECTRIC FANS
ELECTRONIC DEVICES
FIRE EXTINGUISHERS
FREEZER PARTS
GRILLES
HEATING EQUIPMENT
LAWN SPRINKLERS
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FISHING LURES & HOOKS

and need excellent adhesion to Aluminum, Magnesium, Cadmium, or Stainless, TRY . . . . . .

GRIPALLOY — It's Tenacious!!!

TENAX **FINISHING PRODUCTS COMPANY**

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Lacquers — Enamels — Synthetics — Vinyls

For more data, circle 184 on colored card.

ing and rinsing solutions, dry-off before painting, paint application, and proper drying and baking—these do not change. But how these things are accomplished are of vital importance, and it is in this area that the greatest advances have been and will be made. New finishes today and methods of applying them were not even available ten years ago.

Management and supervisory personnel directly responsible for the success of the business can ill afford to be complacent and satisfied with their present production setups. Men with brains, energy and foresight are quick to take advantage of new methods and materials as soon as and often before their competitors.

How do you find out about it? Well, insofar as finishing the product is concerned, the practical information can be obtained by reading every current issue of INDUSTRIAL FINISHING Magazine and by listening to experienced representatives of equipment and material suppliers, and then making up your mind to do something about it. Paraphrasing an old adage, "It takes money to make money," it takes progress to stay in business. —*P.C.B.*

Joe A. Sanches, Sales Mgr. for J. Landau & Co.

Joseph A. Sanches has been appointed Sales Manager for the J. Landau & Co., Inc., of Carlstadt, N. J., one of the industrial finishes and paint manufacturers in the east. This appointment is another step in the long range expansion program being carried out by the company, which has been in business since 1920.

Mr. Sanches joined the firm after serving as Sales Manager for an airless spray equipment company. He comes to the J. Landau & Co., Inc., with 20 years of experience in the finishing field, and is well known throughout northeastern U. S. His extensive knowledge of finishes, combined with his experience in airless and hot-spray, encompasses a unique specialized service for the company.

DUST IS COSTLY in Finishing

It's Real Economy to use *Bond*®

TACK CLOTHS

Before Every Finishing Job!

SAVES WORK — SAVES TIME, TOO!

No matter what surface you work with—whether metal or wood—you can't afford dust! It can be costly. Improve every finish by insuring a speck-free surface **before** every finishing job. A quick "once-over" with a BOND TACK CLOTH removes every speck of dust in **seconds**—insures a gleaming surface every time.

There's a big difference in TACK CLOTHS, too—that's why BOND produces **four** different meshes of cloth with several types of formulation to give you the cloth that best "fits" your special needs, whether wood or metal surfaces are involved.

Packed in 150 yard rolls of 36" wide cloth or in handy cartons, as you prefer. Stays soft and tacky until the last bit is used up. Choice of Standard, extra Tacky or less Tacky —in WHITE or in GOLD.

COMPARE RESULTS — SAMPLES SENT UPON REQUEST FOR PROOF-TEST!

IN ROLLS: Cut off any size piece as needed.

IN BULK: Size, 18x36", folded to 4½x18" or 9x18" for ease of handling. Cut & folded, ready to use.

Also Individually Packed in Glassine Envelopes — 144 to the carton.

"The Tacky Wiper Specialist"

Bond® Chemical Products Co.

2104 WEST FULTON ST., CHICAGO 12, ILL.

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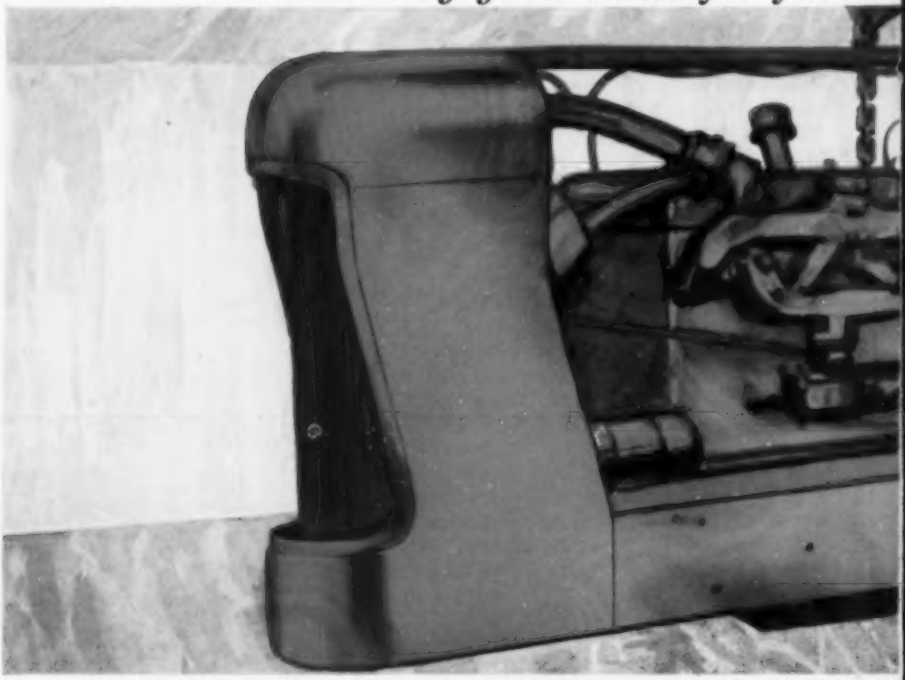
Lasting good looks for farm



Just one coat of Du Pont DU
sales appeal, protect

It takes an outstanding finish to combine showroom appearance with the durability a farmer needs to protect equipment. But "Dulux" Enamel does it with just one spraying. This hard, high-gloss finish withstands scorching sunlight, temperature extremes and the rigors of farm service . . . resists chipping, cracking and aging.

"Dulux" covers more area with less paint because of its

DU PONT INDUSTRIAL

For more data, circle

equipment

Despite constant exposure to sun and weather, "Dulux" resists chalking and lifting. Tractor manufacturers even spray the motor block with durable "Dulux" (see below).

LUX® Enamel adds sparkling ion against exposure

higher-solids content. It's simple to handle, safe to store . . . resists pigment separation and viscosity changes. "Dulux" gives a smooth high build, even on sharp edges, and can be applied by hot, cold or steam spray.

Get details on "Dulux" Enamel from your Du Pont Representative, or write: E. I. du Pont de Nemours & Co. (Inc.), 2500 Nemours Bldg., Wilmington 98, Del.

DU PONT

FINISHES BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

185 on colored card.

How We Paint CLINTON ENGINES

By Gene Streets, Works Manager
Clinton Engines Corp., Maquoketa, Iowa

CLINTON ENGINES are designed for farm and home, for military use and for industrial equipment. The engines are produced in a wide range of models, in two and 4-cycle types, from 3¼ to 9.6-hp. The engines are used for operating cultivators, tillers, mowers, power generators, chain saws, snow plows, air compressors for portable spray equipment, freezing units and for many

industrial uses, especially those that must be performed beyond the electric power lines.

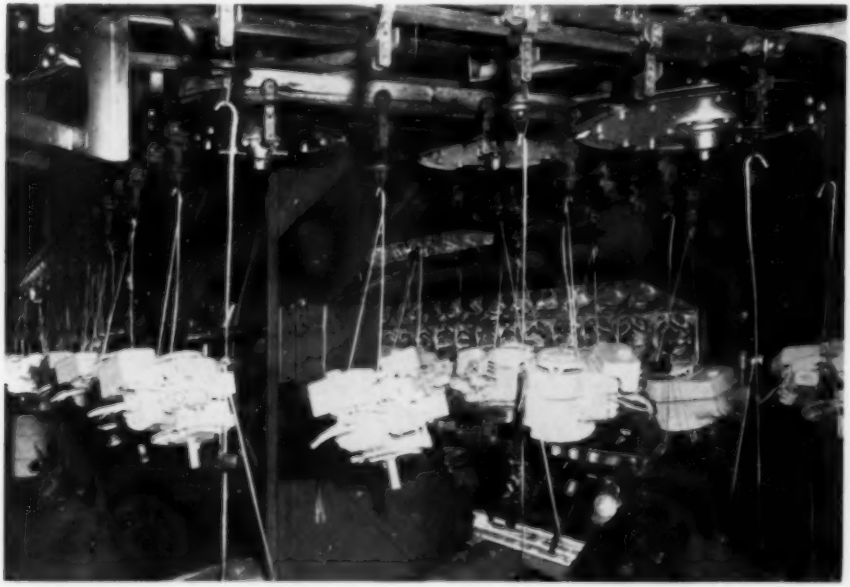
Finish on Clinton Engines Is Durable and Attractive

The paint finish on these engines is important. First, they must have an attractive appearance to catch the eye of prospective buyers, and second, extreme durability because they are used in every climate throughout the world; these engines are exposed to the elements from the tropics to the arctic. The engineering and quality control personnel issue detailed finishing specifications—extending all the way from surface preparation to the final bake; they also control inspection and they run tests on the finish at regular intervals.

Here is a new cleaning, surface treating, painting and baking setup that takes formed sheet metal and castings in various shapes and sizes, involves fast color changes, calls for masking, and includes 2-level travel through electric infrared heat, followed by inspection and the application of various decals.

The finishing of engines is not a simple operation. Here we are dealing with various gauges of cold and hot rolled steel, terneplate, cast iron and cast aluminum in various

Engines leaving spray booths enter first section of infrared electric oven hanging from three parallel overhead cable-type conveyors. Photo from The E. W. Buschman Co.



sizes and shapes. Add to this the various soils, both in type and quantity, to be removed; the necessity of phosphatizing and/or etching metal surfaces before applying any surface coating; and finally, baking the finish on sheet metals and castings in a single oven. This, I believe you will agree, makes it a complicated operation. You see we must have continuous control and close cooperation among the personnel in engineering, quality control and manufacturing to obtain the high quality finish required.

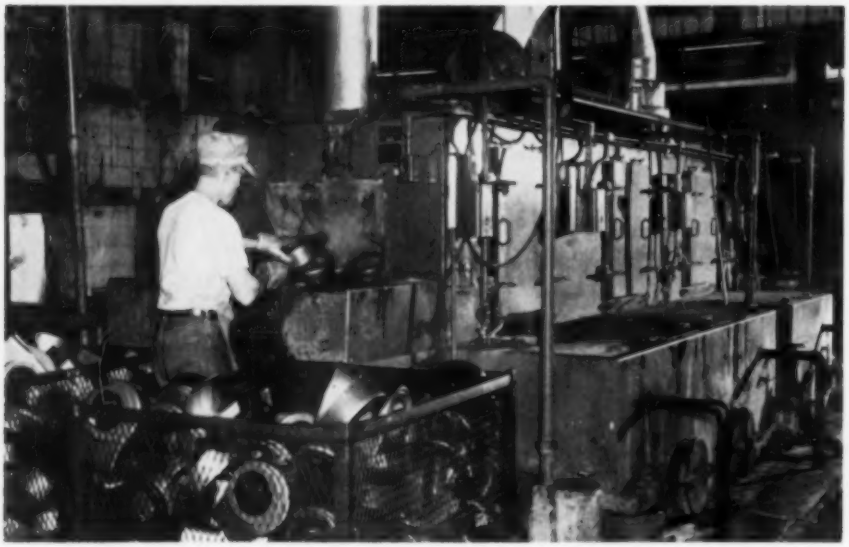
Surface Preparation; Different Metal Thicknesses and Soils

Some of the lighter soils are removed from light gauge metal parts in a trichlorethylene vapor degreaser. Heavier soils on thicker gauge metals and castings are removed in a 3-stage power washer. This must be a high production machine as there are far more of these parts than there are of light gauge parts.

Castings and heavy-gauge metal parts are brought to the washer in wire trays or tote skids by fork-lift trucks. They are placed on a metal mesh belt conveyor which carries them through the washer. In the first stage a phosphoric acid cleaner solution, at 165° F., is sprayed on the parts from four sides of the washer, at 35-lbs. pressure. This is followed by a hot water rinse at 185° F. In the third stage a chromic acid solution is sprayed on at 185° F.

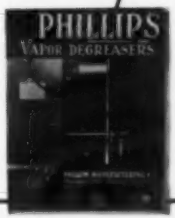
After going through the washer

Heavy gauge metal parts, along with iron and aluminum castings, are fed into this 3-stage washer to remove soil before sub-assembly. Completed engines then go through a degreaser to remove any soil, fingermarks, etc., before painting.



Phillips

the quality name in cleaning and degreasing equipment



OVER 10,000 . . . PHILLIPS degreasers are in use in the U.S.A. All sizes and shapes . . . continuous production or simple manually operated machines. There are many types of degreasers for more uses than most people know . . . Send for free illustrated brochure No. 19.

ULTRASONICS . . . Not every cleaning job requires ultrasonics. Those that do, require experienced application technique for proper selection of transducers, frequencies and solvents . . . PHILLIPS has this experience . . . PLUS a complete selection of ultrasonic units. Check with PHILLIPS before buying. Send for free illustrated brochure No. 23.

TROUBLE with water spots on metal parts after washing? Only PHILLIPS has the new, PATENTED, "TRISEC" solvent dryer. The positive way to dry highly polished articles COMPLETELY STAIN-FREE. Send for free illustrated bulletin No. 24.

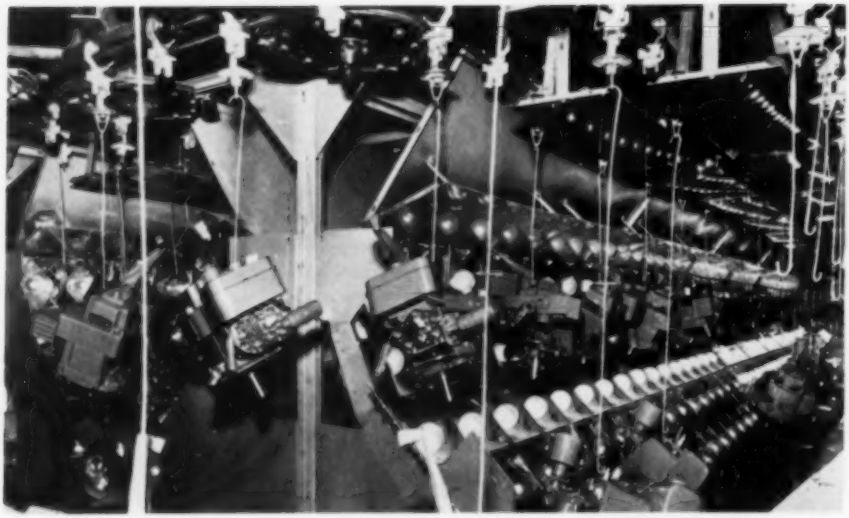
Check your Yellow Pages for the nearest PHILLIPS representative.

Phillips MANUFACTURING COMPANY

3475 West Touhy Avenue, Chicago (Lincolnwood) 45, Illinois

DEGREASERS • WASHERS • DRYERS • ULTRASONICS • DEGREASING SOLVENTS

For more data, circle 186 on colored card.



The finish is correctly baked on complicated contours of engines in these parallel side-by-side infrared electric tunnels. Note the shape and lamp arrangement of the 2-section oven through which engines travel on two levels by way of three parallel conveyor lines. Photo, courtesy The Fostoria Corporation.

the parts are unloaded, separated and put into either wire trays or tote skids to air-dry before painting. Due to the elevated pressure at which the solutions and water rinse are sprayed, all of the soil is removed from every surface of the parts. The high temperatures used promote fast air-drying of the surfaces so that by the time the parts arrive at the sub-assembly lines, they are clean and dry and in good condition for what follows.

Completed sub-assemblies are returned to the overhead monorail conveyor line to travel either to final assembly or to a storage conveyor. All sub-assemblies are continuously moving on the elevated conveyor line. This method saves valuable time and floor space and reduces manual handling.

Engines Are Tested, Masked and Degreased

After assembly, engines are filled with oil and gas so that each engine can be operated for actual performance tests.

When the tests are completed, the oil and remaining gas are then drained out of the engine, and the muffler, air intake, lead wires and name plate are masked to protect them against paint. Die-cut pressure sensitive masks are used on the name plate, but masking tape is used on the other areas. The engines then go through a trichlorethylene vapor degreaser to remove any oil or finger marks. After leaving the degreaser, fiber-sleeve masks are slipped over the crankshaft and sparkplugs to protect them from paint. [*To page 84*]

ELECTRIC INFRARED PROCESSING EQUIPMENT ALLOWS MANUFACTURERS TO COUNTDOWN TO A NEW MINIMUM TIME REQUIREMENT IN MANY INDUSTRIAL HEATING APPLICATIONS

The Fostoria Infrared process is partly responsible for the quality built into the products you see here. Its speed breaks bottlenecks in production techniques. Its flexibility allows adjustment to new conditions with a minimum of effort. Its versatility provides economies unheard of in convection heating equipment. If you use heat in your manufacturing process, make a note to check with Fostoria about how to improve product quality with this time-saving, money-saving, labor-saving electric infrared equipment.

For temperature requirements under 900° F. send for folder "Applications Unlimited."

For temperature requirements from 900° to 3000° F. send for "Breakthrough" folder.

COUNT DOWN

FOSTORIA

THE FOSTORIA CORPORATION • FOSTORIA, OHIO

MANUFACTURERS OF ENGINEERED RADIANT ENERGY EQUIPMENT AND CRITICAL WORK AREA LIGHTING

For more data, circle 189 on colored card.

[*Continued from page 82*]

Why We Have Three Overhead Conveyor Lines

At this point engines are pattern loaded, not on a single overhead conveyor but on three of these conveyors, to be spray painted. The paint is baked in a single infrared electric oven.

This separation of engines is necessary as it must be remembered that there are various kinds, as well as different gauges, of sheet steel, iron and aluminum castings, all of which require specific baking temperatures.

One conveyor is 729-ft. long; another is 668-ft. long, and the third is 639-ft. long. All have hooks spaced on 24-in. centers. The conveyors are driven through a variable-speed drive which gives a speed range of 4.8 to 13.3-ft. per minute.

Different Colors Sprayed in Booth at Same Time

The engines pass through three water-wash spray booths, each wide enough to accommodate three spray operators. The first operator sprays a prime coat, the second sprays a semi-finish coat and the third sprays the final top coat on each engine. The enamel is the same type and color for each coat. With virtually three coats we obtain a dry film thickness of 1¼-mils over the entire surface, even in recessed areas.

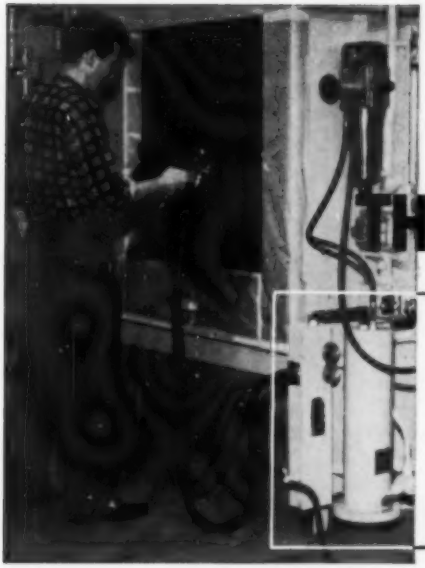
Ten different standard colors of modified alkyd-resin base enamel are used. They include white, red, yellow, blue, black, orange, maroon, tan and olive drab, plus different shades of all but the olive drab color. The average viscosity (we use slightly different viscosities for certain colors) is from 22 to 30 seconds, at 78° F., as measured in a No. 2 Zahn cup. The enamel passes through paint heaters which are maintained at 165° F.; it is sprayed on at 60-lbs. atomizing pressure and 30-lbs. fluid pressure.

The individual conveyors are not pattern loaded insofar as colors are concerned, hence frequent and fast color changes must be made at each of the three spray booths. A numbering system designates the required color to use.

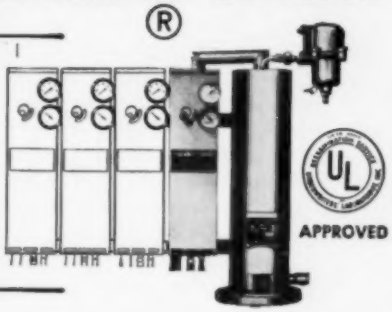
Perhaps you may be wondering how No. 2 operator in the booth can be applying, for instance, a white semi-finish coat on an engine when No. 1 operator, due to a color change, is spraying the next engine, only 24-in. away, with a bright red enamel—without red overspray contaminating the white coat that No. 2 operator is spraying on the preceding engine. This problem is solved by using a more powerful exhaust which gives us a more rapid movement of air across the face of the booth. This powerful draft causes the overspray from each gun to flow directly into the water curtain of the spray booth; it doesn't fan out to contaminate another color that is being sprayed close by.

Flash off 1½ Minutes; Bake in Infrared Electric Tunnel

The engines travel on the three conveyor lines for 1½ minutes to provide a suitable flash-off period for volatile solvents to evaporate before the painted engines enter



LEADING MANUFACTURERS* HOT-SPRAY WITH THERM-O-SPRAY®



* This Therm-O-Spray Heater Type SPC-5 is installed at Western Electric Company, Springfield Gardens, L. I., N. Y. together with six other Therm-O-Spray units.

In their different plants Western Electric Company totally have about 90 THERM-O-SPRAY units installed.

There is no pump . . . nothing to wear out. There is no gasket or packing to leak. Heat transfer is synchronized with spraying. No overheating of paint . . . no clogging. Preheated atomizing air—therefore no water condensation.

THERMOSPRAY COMPANY, Inc.

155 First Street,
Mineola, New York

Distributors invited.
Some territories still open.

can be expanded into multicolor units

THERM-O-SPRAY
CUP HEATER TYPE LFK

For auto refinishers and others, who use spray guns attached to suction or pressure feed cups.

Very suitable also for paint manufacturers for testing and formulating their paints for hot spraying.

For more data, circle 188 on colored card.

an infrared electric oven. This oven has lamps inserted in wide-angle gold-plated reflectors to bake the finish. You will note in one of the accompanying pictures that the three lines are parallel and the engines pass through the oven at two distinct levels by means of different length hooks. This is done to accommodate the different sizes and shapes; also to take care of the different gauge metal parts, to provide the correct baking heat for all different parts of engines.

Throughout the length of the oven, the engines are mechanically rotated at the rate of one revolution per foot of travel so that the finish on all surfaces — even depressed areas—will be properly cured. The oven consists of two equal-length parallel sections totaling 73-ft. 4-in.—with total design capacity of 412-kw. The finish is baked for a total of nine minutes —4½ minutes at 290° F., then 4½ minutes at 140° F.

Name and trademark decals are applied on engines as they move along by conveyor.

After cooling for ten minutes, all masking is removed from the engines. Then trademark, name and instructional decals are applied as the engines move along on the conveyors. The engines are visually inspected, placed on mounting boards and packed for shipment.

DuBois Chemicals, Inc. Forms New Air-Space Division

DuBois Chemicals, Inc., has formed an Air-Space Division for the research, development, manufacture, marketing and servicing of specialized cleaning, processing and maintenance products for use by military and commercial aircraft, missile and space agencies and industries.

The following men have been selected to direct the activities of the Air-Space Division:

Dr. Edward B. Tooper, Director of Research; Thomas C. Fisher, Associate Director; Neil E. DeBranch, Associate Director; Victor Ledbetter, Assistant Director; William P. Wilson, Research Chemist; John Keating, Research Chemist; Walter E. Wilgan, Technical Representative; and Louis R. Karraker, Coordinator.

Among the products that the DuBois Chemicals Air-Space program will introduce are aluminum brighteners, cold tank carbon removers, spot strippers thick and immersion tank strippers, dual purpose alkaline cleaners, steam cleaners, chromate conversion coatings, desealants, jet and reciprocal engine cleaners and maskants. Although these products have been developed and tested primarily for use in the aircraft and missile fields, they will be suitable for other industries as well.

R. C. Hum; Bradley & Vrooman

Richard C. Hum has joined the Bradley & Vrooman Co., Chicago manufacturer of protective packaging materials, as eastern packaging and technical consultant.

Hum will handle the company's Hi-Bake Sterilkote steel container linings, which are custom formulated to meet various industrial packaging requirements. He will call on drum manufacturers and users, covering the east coast.

FAST STRIPPERS

- ✓ **FAST, CLEAN WORKING**...unlike caustics or strong acids, these strippers do not dissolve or decompose enamel or lacquer. These strippers break the bond between the metal and the organic coating. Loosened coating then slips off in sheets or shreds.
- ✓ **NON-CORRODING**...our strippers do not attack aluminum, zinc, ferrous metals or any other metal or alloy.
- ✓ **CONVENIENT**...stripped metal may be rinsed with water, dried and refinished immediately.

LEA COLDSTRIP

1. Requires no dilution. Use full strength.
2. No heating required. Use at room temperature.
3. Although toxicity is low, care should be taken to avoid contact with the skin.
4. Minimum ventilation required.
5. Can be strained for continued use.
6. Surface of Coldstrip is self-sealing (reduces evaporation).

LEA SYNSTRIP

1. May or may not be diluted with water, depending upon the film adherence.

   Maximum dilution should be 1 part Synstrip to 6 parts water.
2. Can be used cold or heated. Heating to temperature from 160° to 200°F. cuts stripping time.
3. Toxic. Avoid inhaling or contact with skin.
4. Heated solution requires ventilation to remove fumes.
5. Can be strained for continued use.
6. Evaporated water should be replaced to maintain concentration. Baumé readings on a hydrometer will determine the amount of water to add.

The Hallmark of Quality Products

Send for complete technical information on the fast working strippers.

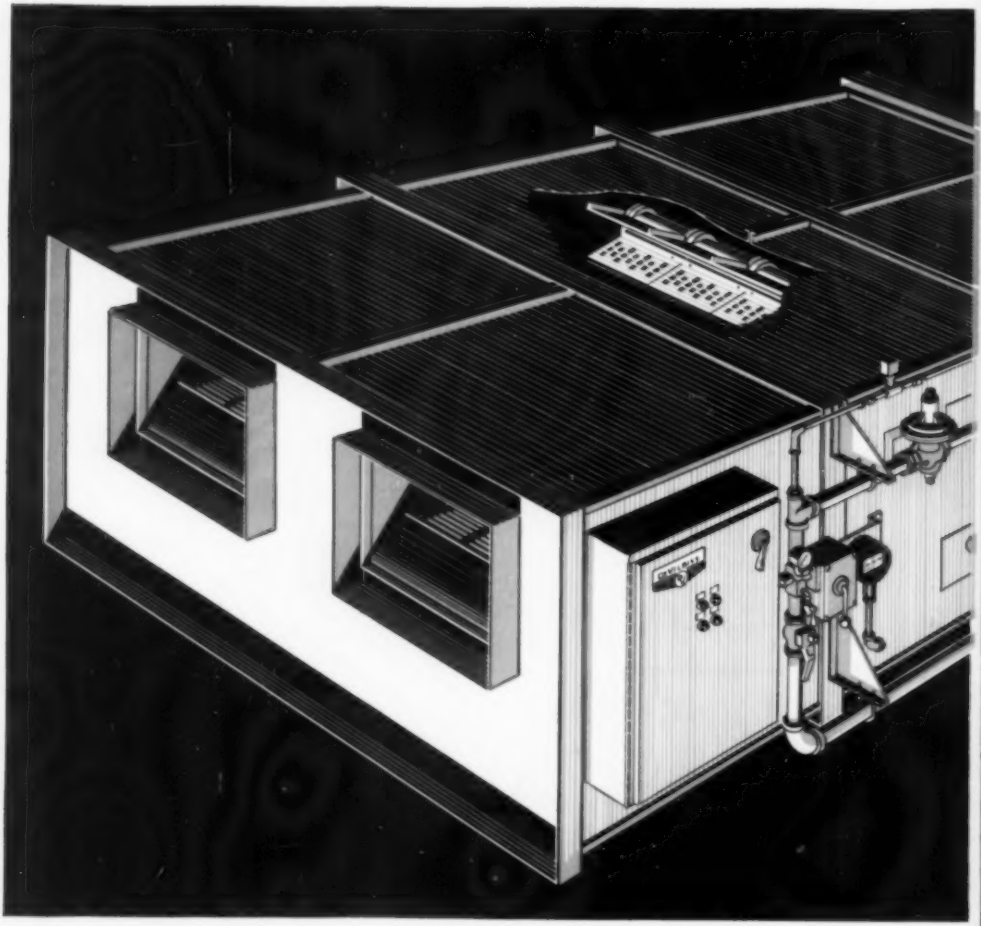
THE LEA MANUFACTURING CO.
16 CHERRY AVE., WATERBURY 20, CONN.

Lea-Michigan, Inc., 14459 Wildemere, Detroit 38, Mich.
Lea Mfg. Co. of Can., Ltd., 1236 Birchmount Rd., Scarborough, Ont., Can.
Lea Mfg. Co. of England, Ltd., Rock Terrace, Buxton, Derbyshire, England
Lea-Ronal, Inc., Main Office & Lab.: 130-19 180th St., Jamaica 34, N. Y.
Manufacturing Plant: 235 East Aurora St., Waterbury 20, Conn.

For more data, circle 187 on colored card.

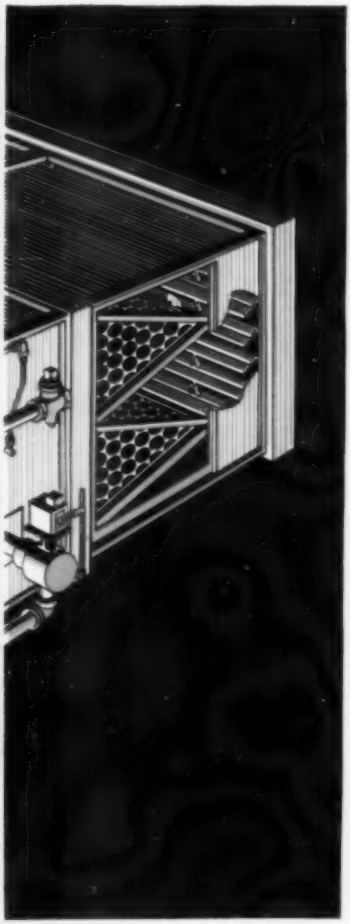
Effective air

with DeVilbiss air-replacement



balance

units



Your plant runs more smoothly when you have correct air balance. This means replacing the tempered air you're exhausting from spray booths, bake ovens, plating rooms, welding areas, dust-collection systems, parts washers and similar equipment. You have better ventilation, fewer drafts and cold spots, less heat load on your central heating system. Your exhaust system functions properly; employees are more comfortable. For volumes up to 40,000 CFM, DeVilbiss packaged air-replacement units are your answer. They come complete with housings, fans, burners, controls, filters, dampers, roof or wall air intakes—ready to install. For larger needs, we can design a make-up air system as simple or elaborate as required—manual or automatic—to meet your climate and plant conditions. Call us. Our engineering, fabrication, and installation experience encompasses systems of all types. The DeVilbiss Company, Toledo 1, Ohio. Also Barrie, Ontario; London, England; São Paulo, Brazil. Offices in principal cities.

FOR TOTAL SERVICE, CALL

DEVILBISS

For more data, circle 190 on colored card.

LETTERS from READERS

Gold Crackle Finish

I would appreciate it very much if you could give me the names and addresses of suppliers of "Gold Crackle" finish.

Also, do you have any information on whether it can be applied over a different color or material, so that as the gold reticulates the undercoating would show through?—*Ph. Co.*

In a letter we are giving you names and addresses of several suppliers. They can also give you the information about crackle formation.—*Editor.*

Colors Ground in Oil

We are looking for a source of supply on colors ground in oil and colors ground in japan. Also, a source that manufactures the dispersion colors used by paint people for tinting of colors. If you can give us such sources, please advise us.—*S.C.Co.*

Abrasion Resistant Coating For Steel

We are a steel fabricator desirous of having a paint that has the greatest possible resistance to abrasion and scratching that we can find. To date we have found that a hard surface organisol is our best.

Would you please put us in touch with two or three suppliers of organisols who have successfully established tanks for dipping the finish, especially on metal-working products? —*L. Mfg. Co.*

In a letter we are naming a few concerns. There are probably many others that can supply what you need. —*Editor.*

Want 100 Plastic Signs

We noted the interesting article about finishing operations at the American Sign Co., Cincinnati, Ohio, in August issue. We are interested in purchasing about 100 signs similar to those shown. Please ask them to write us.—*Schaefer, Inc., Stamford, Conn.*

We are forwarding your letter to the American Sign Co.—*Editor.*

"Etch and Lacquer" Finish For Aluminum

We are interested in contacting manufacturers of chemicals required to obtain an "Etch & Lacquer" finish for our aluminum windows. We would like to contact those manufacturers that could supply us with technical information and assistance, as

PERFEX SATIN FINISHES FOR •TABLES

No Rubbing Needed!...

Many table manufacturers are using Perfex Stain Finishes to secure that rubbed appearance and waxed feel—without the costly rubbing operation—and while Perfex Stain Finishes are ideally suited to tables, *numerous other pieces of furniture are likewise candidates* for these labor-saving, time-saving finishes.

Perfex was the original "flat" to be made by a new and different process (without the use of stearates or flattening agents) and it is still the "flat" which comes nearest to producing an actual rubbed varnish appearance. It is the Perfect flat finish—quick set, quick dry, waterproof, liquor proof, good build, full smooth body, beautiful rubbed effect, smooth waxed feel. Available in a full range of sheens.

PERFECTION

If you manufacture tables or other furniture and are interested in securing an excellent rubbed finish effect, without a costly rubbing operation, we invite your inquiry.

PAINT AND COLOR COMPANY

INDIANAPOLIS 2, INDIANA

For more data, circle 191 on colored card.

well as the products needed. Your cooperation will be very much appreciated.—*C.W.Corp.*

Concerns that supply cleaning and etching chemicals for aluminum surfaces advertise every month in this magazine; also firms that can supply excellent lacquers. In a letter, we are naming most of them.—*Editor.*

"When you get time, of course . . . .".

Finishing Consultants

We note from your August issue, page 98, that you supplied to an inquirer the names of a number of consultants on finishing problems. Would you send us the same list? We are in the New York area and our main concern is with drying methods for our new finishing department.—*A.W.*

One excellent Finishing Consultant advertises in every issue of this magazine. In a letter we are naming a few others.—*Editor.*

Gold Color Finish on Metals and Plastics

We had an opportunity to go through your magazine and are very much impressed by the wealth of information it contains.

We wish to ask you to supply us with information or a source of information on how to obtain a brass gold finish on metals and plastics, other than by vacuum coating.

We shall also be much pleased if you could furnish us with names and addresses of the manufacturers or suppliers of lacquers for plastics.—*Delux Plastics Products, Madras 1, India.*

In a letter we are giving you names and addresses of companies that can supply what you want.—*Editor.*

To Clean Missile Parts

In July issue, pages 32-33, there was described the "Acoustica" ultrasonic cleaner used to clean missile parts. We are interested in this equipment and wonder if you can arrange for us to be sent descriptive literature about it—or could you let us have the name of the company who manufactures it and we will write them?—*Dawson Bros., Ltd. (Gomersal Nr. Leeds, England).*

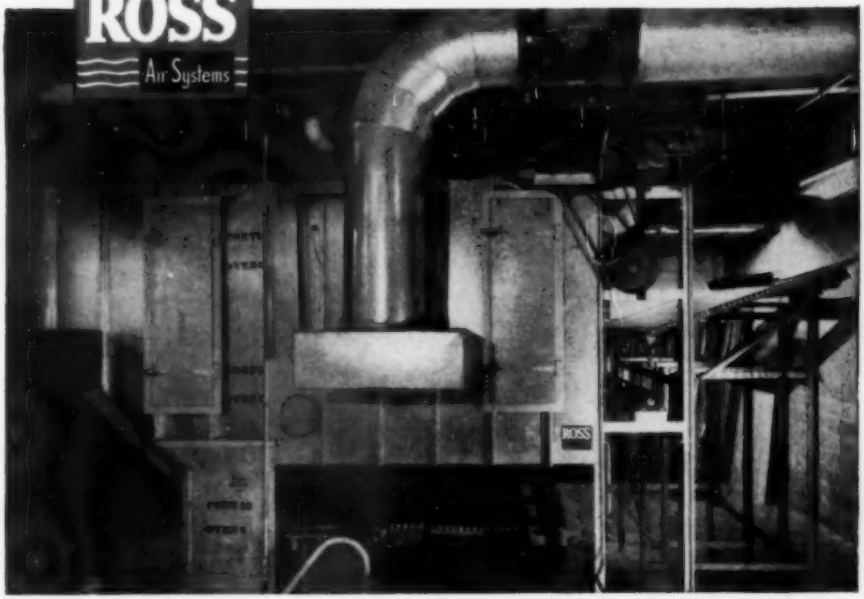
We refer you to Acoustica Associates, Inc., 600 Old Country Road, Garden City, L. I., N. Y.—*Editor.*

Striping V-Grooves

In the August issue, pages 97 and 98, Mr. Kurt Rosenbaum of Automation Associates, Inc., states that they have developed a means for automatically striping V-grooves. Could you give me Mr. Rosenbaum's address

ROSS
Air Systems

Engineered Atmospheres for Better Processing



UNITED STATES PLYWOOD CORPORATION, ORANGEBURG, S. C.

Two Engineering Innovations Highlight This Plywood Finishing System

FAST DRYING – Application of high velocity drying to plywood finishing for the first time, saving in drying time up to 50%.

COMPACTNESS – All equipment and operation for a multi-color plywood line are within a floor area 115 x 128 ft. The high velocity dryer multi-deck drying units and ingenious arrangement of conveyors and transfers help to make this compactness possible.

Ask to have one of our engineers drop in and describe the Ross ovens, dryers, controls and handling equipment which are incorporated in the United States Plywood Finishing Line at Orangeburg, S. C. This installation is an outstanding example of the work done by Ross Engineers in the important field of 'Engineered Atmospheres,' the basic principle in back of all industrial drying, baking and curing.

Visit us at our
Metal Show Booth

J. O. ROSS

J. O. ROSS ENGINEERING/a division of Midland-Ross Corporation
730 Third Avenue, New York 17, New York
ATLANTA · BOSTON · DETROIT · LOS ANGELES · SEATTLE · MT. PROSPECT, ILL. · MOBILE

MR

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THE SOLVENTS AND CHEMICALS GROUP

your smartest move!

"Get the jump" on competition by using a **single** local source with complete, on-the-spot alcohol stocks from America's leading producers. Your increased volume purchases through a single source assure you of maximum buying economy —and you benefit from combination order savings (different types and grades delivered at one time). Your SCG salesman can objectively recommend one or more alcohols whose physical properties add important end-use features to your products. Call today for specific suggestions—there are 21 convenient SCG plants and stock points ready to supply **all** your alcohol requirements . . .

properties of alcohols available from SCG

ALCOHOLS	Boiling Range IBP °F.	IBP °C.	Dry °F.	Dry °C.	Flash Point F. (Closed Cup)	Speed Evap. Min.	Solubility Weight % in H_2O	Solubility Weight % of H_2O	Spec. Grav. @60 F.	Wt. per Gal. Average @60 F.
Methanol 99.8%	147	64	149	65	40	1.6	inf.	inf.	.794	6.61
Ethanol 190 Proof	167	75	176	80	48	2.4	inf.	inf.	.818	6.81
Ethanol Anhydrous	167	75	176	80	45	2.3	inf.	inf.	.801	6.67
Isopropyl 91%	175	79	181	83	62	3.6	inf.	inf.	.818	6.81
Isopropyl Anhydrous	179	82	181	83	59	2.6	inf.	inf.	.790	6.58
n-Propyl Alcohol	205	96	208	98	90†	5.3	inf.	inf.	.808	6.73
Sec. Butyl Alcohol	206	97	217	103	74	5.1	24.4	56.0	.808**	6.73*
n-Butyl Alcohol	241	116	246	119	95	11.6	7.7	20.1	.811*	6.75*
Amyl Alcohol	246	119	284	140	90	19.0	2.8	6.9	.817*	6.8*
Fusel Oil (refined)	230	110	293	145	106	19.3	2.5	10.0	.812*	6.76*
Cyclohexanol	320	160	324	162	154†	73	.13	11.0	.950*	7.91*

†open cup *at 68F.

WRITE FOR YOUR COPY of The Solvents and Chemicals Group ORGANIC SOLVENTS HANDBOOK.
Contains definitions, various evaluation methods, applications, etc.

THE SOLVENTS AND CHEMICALS GROUP, 2540 W. FLOURNOY STREET, CHICAGO 12, ILLINOIS

Buffalo, Buffalo Solvents & Chemicals Corp., TR 6-1572
Chicago, Central Solvents & Chemicals Co., SE 3-0505
Cincinnati, Amsco Solvents & Chemicals Co., EL 1-4700
Cleveland, Ohio Solvents & Chemicals Co., CL 2-1100
Dallas, Texas Solvents & Chemicals Co., FE 1-5428
Detroit, Western Solvents & Chemicals Co., WA 1-6350
Erie, Buffalo Solvents & Chemicals Corp., GL 6-3951
Ft. Wayne, Hoosier Solv. & Chem. Corp., Anthony 0213
Grand Rapids, Wolverine Solv. & Chem. Co., CH 5-9111
Houston, Texas Solvents & Chemicals Co., OR 2-6683
Indianapolis, Hoosier Solvents & Chemicals Corp., ME 8-1361
Kansas City, Missouri Solvents & Chemicals Co., CH 1-3223
La Crosse, Wisconsin Solvents & Chemicals Co., LCRS 2-3011
Los Angeles, Central Solv. & Chem. Co., (Cal.), UN 4-7711 or SP 3-3471
Louisville, Dixie Solvents & Chemicals Co., EM 8-5828
Milwaukee, Wisconsin Solvents & Chemicals Co., GR 6-2630
New Orleans, Southern Solvents & Chemicals Corp., VE 3-4666
Rochester, Buffalo Solvents & Chemicals Corp., LO 2-5980
St. Louis, Missouri Solvents & Chemicals Co., GA 1-3495
Toledo, Toledo Solvents & Chemicals Co., JE 6-3771
Windsor, Ontario, Western Solvents & Chemicals Ltd., CL 2-0933

For more data, circle 193 on colored card.

Self-spray paint troubles stop here

This is part of Sprayon's quality-control laboratory, where six full-time chemists and paint technicians make sure that your aerosol finishes—custom-loaded by Sprayon—never vary in color or performance. Before production begins, even on a routine re-order, prototype cans are made up in the laboratory and given an accelerated aging test equal to a year of shelf life. Test panels are then sprayed and the film is analyzed by precision instruments. Gloss and other characteristics are checked. Color is double-checked under a MacBeth light, the accepted standard of the paint industry. The spray pattern and the mechanical efficiency of the container are checked. All test data, materials and samples are dated, coded and filed for a year for later reference. Sprayon quality control is one reason why Sprayon has handled the greatest possible variety of contract-loading assignments for many of the nation's largest manufacturers—year after year after year. Get the full Sprayon story today.

SPRAYON PRODUCTS, INC. 2065 E. 65th St., Cleveland 3, Ohio

For more data, circle 194 on colored card.

so that I might contact him? We are interested in a machine for striping V-grooved panels and would appreciate the names of other manufacturers who offer such equipment.—*O.L.Co.*

We also are interested in methods of striping V-grooves and wider surfaces which are not flat, but on the order of a quarter round. In the August issue, pages 97-98, we note where you sent one company the names of striping equipment manufacturers, and also a letter from Automation Associates, Inc. Could you please supply us with the address of all these companies?

"Here we always start from scratch...".

We would also be glad to receive any suggestions from readers as to methods of applying gold to French Provincial suites.—*K.Mfg.Co.*

Automation Associates, Inc., is located at 18 Greenridge Way, Spring Valley, New York.—*Editor.*

Zinc Paint on Metal

Recently I read an article in one of Ford's magazines, "Winning the War Against Corrosion," by Burgess H. Scott, in which he stated they use a zinc paint over metal to prevent rust. If possible, I would appreciate further information on this method of coating metal—*U.F.A.*

For more information on this subject we suggest you contact American Zinc Institute, 60 E. 42nd St., New York, N. Y. and/or the New Jersey Zinc Co., 160 Front St., New York 7, N. Y. The latter firm does not sell zinc paints; however, if your supplier cannot furnish what you want, this firm can probably name one or more suppliers.—*Editor.*

Doesn't Work Upside Down

We appreciate the fine story on page 127 of your August issue about the new Small Parts Batch Washer manufactured by our client, Alvey-Ferguson Co., but unfortunately our client's machine simply will not operate upside down, which is the way it appears in your publication.

It would please our client (as well as ourselves) if you could re-run the picture with as much of the story or any other explanation you might wish to use with it.—*Associated Advertising Agency, Inc.*

Sorry this occurred; we will run it again, with the cut right side up. —*Editor.*

Burn-in Lacquer Sticks

I have read an article in the July 1961 issue, page 133, in regard to Burn-In Repair Patches. Would you please send us a list of suppliers that

handle burn-in shellac or lacquer sticks? We are interested in finding a source of supply on these sticks that will withstand 130°F. temperature for a 5-hour period.—*The L. Co.*

In a letter we are giving you names and addresses of suppliers.—*Editor.*

Plastisol Coatings

In Aug. issue, Letters from Readers, page 100, under the caption of "We Make Plastisols," the Dennis Chemical Co. and the Specialty Coatings, Inc., Div'n. of Thompson & Co., were mentioned. We have an interest in the Plastisol market and would appreciate receiving the addresses of the two companies.—*A.M. Spirit Co.*

Information given by letter.—*Ed.*

Scratch Resistant Coating

We refer to August issue, Letters from Readers, page 97, where M.P.I. inquires about the name of a company who can supply a "scratch-resistant coating for glass." We have done considerable work on this for application on T.V. tubes and we believe we have what this company desires.—*Rexton Finishes, Inc.*

Patching Filler

Can you suggest a supplier for a patching material to fill holes and checks in lumber prior to finishing? We want something that will take a regular stain and varnish or lacquer finish without showing the patching material. We are also interested in a material for repairing or touching-up damaged finishes.—*D. Furn. Co.*

In a letter we are submitting information.—*Editor.*

Adhesion Promotors

Mr. Gordon: I find your article on Adhesion Promotors, pages 84-85 of August 1961 issue, very interesting. Would it be possible for you to send me more information along this line, especially where I could obtain an organic titanate ester formulated specifically as an adhesion promotor?

I am primarily interested in obtaining better adhesion between aluminum sheet and inks and coatings.—*J. D. R.*

The organic titanate esters mentioned are "Tyzors" made by the Organic Chemicals Department, Dyes & Chemicals Division, E. I. duPont de Nemours & Co.

Many or most users make their own adhesion promotor by diluting one of the Tyzors with a solvent.

The only company I know of that sells this type of adhesion promotor ready to use is Adcote Chemicals, Inc., 2401 Pratt Blvd., Elk Grove Village, Ill. Perhaps the National Paint, Varnish & Lacquer Association could give you more information.—*E. Gordon.*

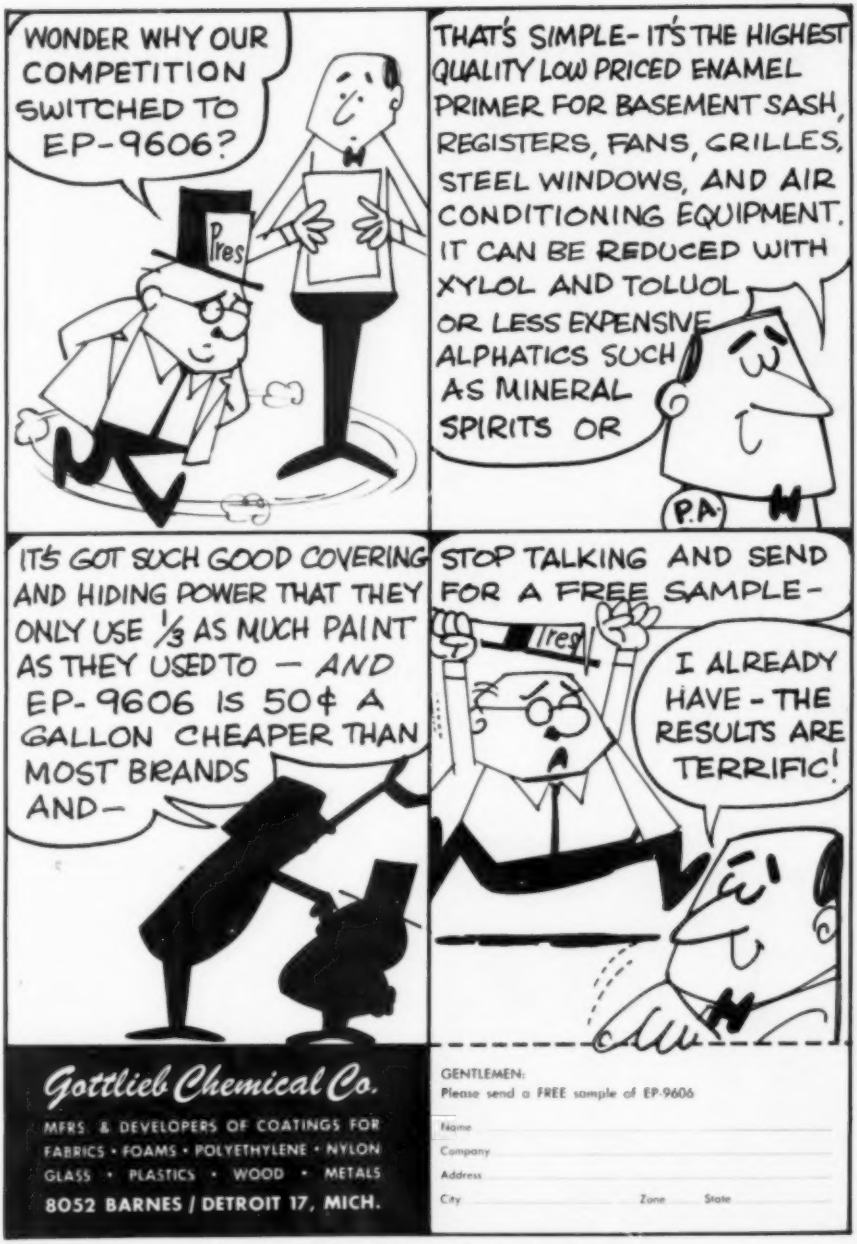
Steam Jet Cleaners

As your subscribers we allow ourselves to ask you some addresses of Steam Jet Cleaner manufacturers who may be keen to give us their manufacturing license? — Elettrotermica Adamoli, Milano, Italy.

In a letter we are naming several such concerns.—*Editor.*

Kitchen Cabinet Article

I was glancing through August issue of *Industrial Finishing Magazine* and found an article of interest regarding the finishing of kitchen cabinets. Would you please send me a copy C.O.D.? Thank you.—*G.G.*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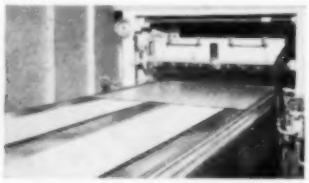

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QUESTIONS and ANSWERS

Welds on Steel Ruin Paint Protection

We supply a dipping aluminum paint to a manufacturer of structural steel and much of their steel structural pieces are coated by our aluminum paint for two reasons: To increase sales appeal and to offer protection for limited periods while the stock is piled before erection. A dry film thickness of about ½-mil is obtained.

We are having trouble with our paint over welding flux and splatter. The flux, the nature of which cannot be changed according to the rod supplier, contains sodium silicate, lime and other materials. Due to the roughness of the area around the weld, the alkalinity and hydrophilic nature of the splatter, our paint gives very poor protection here and rusting quickly occurs.

We suggested a power operated wire brush or abrasive disc but we are told that the extra costs would be prohibitive. There is no time for treatment with acids, washing, etc., so it seems that the debris must stay there.

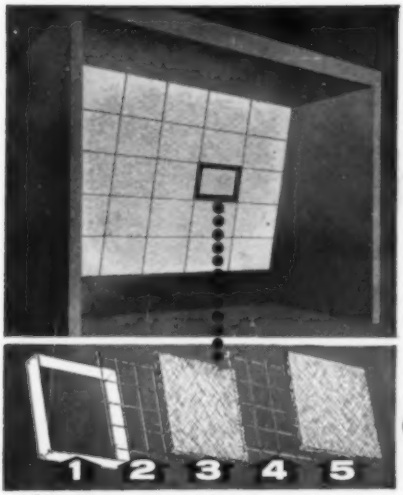
The steel people blame our paint. We feel that nothing within their cost range could stand this abuse. What is your opinion? Do you know of any way of getting out of this dilemma?—*C. Paints, Ltd.*

If the cost of grinding or sanding the welds is prohibitive, the only other suggestion is to spray the welds with a neutralizer that would counteract the effect of the flux. I know of nothing that could be added to the aluminum paint that would produce satisfactory adhesion over welds.—*J.R.C.*

Refinishing Metal Office Equipment

My company refinishes metal office equipment. Often we re-coat over the old surface, when it is in good condition. This surface is usually a baked enamel coating. We clean, sand and prime over the surface and haven't had too good results. Our primer doesn't seem to bond or stick to the surface well. Is there a coating or primer that will etch or cut into a baked finish and be satisfactory under the final coatings of lacquer?—*A.H.R.*

Two things must be considered in this connection. First, the preparation of the surface and second the selection of the primer. My suggestion is to first "gas sand" (wet sand with white gasoline as the lubricant) the surface. This will loosen and sand away the wax, polish and other soil, and at the same time roughen the surface with a minimum of scratches. Next, wash the surfaces thoroughly with solvent, using clean cloths. This washing is very important because of the possible presence of silicones from polishes. Be sure to use clean cloths.



◆ A Paint Arrestor module consists of a Holding Frame (1), two Snap-in Grids (2 and 4), two Paint Arrestors (3 and 5). Loaded Paint Arrestors are simply replaced as necessary. And, they're also ideal for air-borne ink, mist, dye, frit, etc.

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A phenolic modified alkyd-type primer is indicated. This may well be an automotive primer. If the baked enamel surface is properly cleaned, adhesion will be good. A limited color range is available. Drying time must be considered. I imagine that a fast dry is desired. Sanding also must be considered; some of these primer coats should be sanded; others do not require sanding. After the application of the primer, then proceed with the finishing schedule, which would be a surfacer and top coats.

It might be noted that the function of the primer is to provide adhesion to the painted surface and to present a surface that can be finished with subsequent lacquer coats.

It would be advisable to purchase the entire scheduled materials from one source. Explain the problem in its entirety to the supplier. He should have stock items to fill your needs. He will know what his materials will do and you should get a satisfactory job in refinishing baked enameled surfaces.—*C.R. Brown.*

Metering Paint Liquids

Referring to H. Co's letter, published in Sept. issue, page 82-84, wherein reference is made to my article in July 1961 issue, I am happy to say that all statements made in the article are thoroughly documented and it is not necessary to change any of the conclusions drawn. This was a reporting job and I stated facts.

According to printed data issued by Neptune Meter Co., the capacities of their meters are as follows:

Meter Size, inches in dia.	Rate of Flow G.P.M. Max.	Min.	Maximum Temp. of Liquids
5/8	20	2	250° F.
3/4	30	3	250° F.

When I wrote the article I knew these specifications, but from knowledge based on actual observations I said, "these metering devices can be incorporated in almost any spraying system." I still say so.

It would be quite in order and possibly interesting to write directly to the Finishing Superintendents mentioned. Their names and addresses are: Mr. Fred Kessler, Unit-Built Store Equipment Co., 175 Quint St., San Francisco 23, Calif., and Mr. Al. Dimond, Fink & Schindler, 552 Brannan St., San Francisco, Calif.

Mr. Kessler has been using meters for more than five years and recently added three meters in a second spray room.

Mr. Dimond has been using meters for about two years.

In the U.B. Store Equipment factory the materials used and metered are clear lacquer, undercoats, synthetic enamel and 27% solids lacquer —all at normal spraying viscosity. The high-solids lacquer is heated to 140° F. Pressure of flowing material at the meter, 30-lbs.; air pressure at the spray gun, 65-lbs. Rate of flow, maximum, ¼-gallon per minute.

In the F. & S. factory, materials

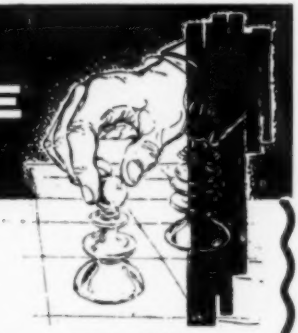
used are clear lacquers and sealers at normal spraying viscosity. Pressure at the meter, 20-lbs; air at the spray gun, 60-lbs.

While I am surprised at the meter company's attitude I can appreciate their stand. I will now hazard an opinion which may be wrong and I stand subject to correction. The rotating disc (the only moving part on the meter) may be made of any one of several metals. It is my personal opinion that one of the lighter metals should be used for this rotating disc. This could have an effect where the material flow is less than the recommendations.—*Charles R. Brown.*

Safe Stains and Finishes For Toys

Regarding a question under the above title, as published in Sept. issue, page 94, my first thought is: "Where is C. & D. getting its stain? Why aren't they getting some technical help on handling it from the same

ITS YOUR MOVE



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source? Who told them to use it in the first place? Why didn't that individual tell them how to use it? Why hasn't C. & D. presented this problem to one of the local outlets of any one of the large finishing houses?"

Certainly there must be some representative in their locality who would be glad to send the problem to the industrial division of the parent company. The problem is not unusual nor new. In dealing with a local source, an understandable procedure could be instituted, correct materials could be used and a satisfactory product would be presented.

Their use of F. D. & C. (Food, Drug and Cosmetic) colors does not give them too much leeway. There are many colors and types of materials that will pass the pure food requirements, and they can be certified as such. Shellac is a wonderful material but certainly it has its limitations. Have they tried adding dye to some of the vinyl materials? Or dip staining followed by a reasonable drying time, and then re-dipping in a penetrating sealer of the nitrocellulose family?—*E.R.*

Why Dip-Coated Parts "Went Bad"

Some time ago I was finishing brake supports for the auto industry by a conveyorized self dipping method. The coating material was a standard chassis black. The parts were cleaned in a conveyorized alkali washer.

In dipping this one batch of several thousand stampings, about ten minutes after leaving the tank, one side of the stock would completely lose all color, sheen, etc., and take on a dull grey look as if no paint were there.

Upon stripping and repainting, or second-coating these pieces, the same action would repeat. Could you or any of your readers tell me what caused this condition? I believe the stock was cold-rolled steel.—*W.H.*

It is my opinion that your trouble arises from the cleaning procedure. A similar situation arose locally (in San Francisco, Calif.). They were dipping springs and every so often the adhesion was not there; also, there was "cratering". Naturally the coating was investigated; it worked perfectly in the laboratory. This was a water-based material, but the solution is equally applicable to a solvent-based coating.

The cleaning was at fault and, incidentally, it was an alkali cleaner. Either the work was touching other pieces or the flushing was not adequate. In any event the soil was not removed and the results were quite like those described in your case.

My suggestion is to check the formulation with the paint supplier, just to be sure on that point. Then check the cleaning procedure with the supplier of the cleaning compound. Be sure that the work remains in the solution long enough; then make certain that all traces of the cleaning solution are completely flushed off the parts being processed. The cleaner will loosen the dirt but it must be removed after it has served its purpose. One fairly certain way to determine whether or not the surface is clean is to wipe it with a clean white rag; any soil will surely show up. It might be a good idea to combine cleaning and phosphatizing in the one operation.

I would call in the paint supplier and the detergent supplier, and present the complete problem to them. Between them they can surely determine what the trouble is and come up with a satisfactory solution. Then be sure to follow their instructions and suggestions.—*Charles R. Brown.*

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Flow Coating; Dip; Spray

While paging through the August I.F., I came across a Q. and A. (page 103), entitled "Dipping or Spraying?", and answered by our friend, Mr. Bardin. I would now like to add a comment or two to Mr. Bardin's golden words.

The original question was changed by Mr. Bardin to include flow coating. I do believe that the comparison made between flow coating and dipping on the one hand, and spraying on the other, should include one more important factor. Two of these methods can result in (a) automation and (b) 100% paint material utilization; while spraying (assuming it is hand spraying) would cost much more than twice as much per square foot in process. It is possible too, in some instances and on some products, to do a better job, with a smoother finish, by flow coat or dip than by spray.

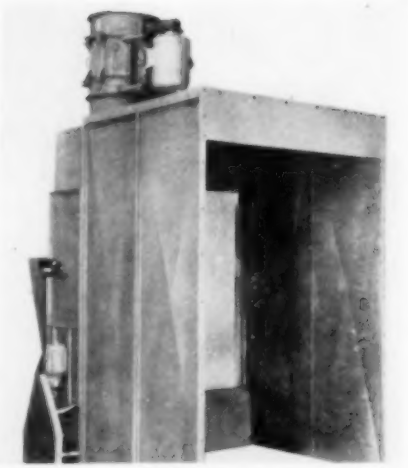
The products involved are described in the original question. These would definitely lend themselves to automatic flow coating; in fact, such are already being processed most successfully in that manner. After all, if one manufacturer can flow coat a one-coat complete finish on a line of office furniture, we shouldn't have much trouble with the pieces mentioned.—*E.A.Zahn.*

Binks Exhibits at Metal Show in Detroit, Oct. 23-27

Binks Mfg. Co., 3120 Carroll Ave., Chicago 12, Ill., will show a variety of spray finishing equipment at the National Metal Show, highlighted by the new Binks Dispo spray booth, and the latest in airless spray finishing equipment.

The show will be held at Detroit's Cobo Hall, from October 23 to 27. Binks will exhibit at Booth 138.

In addition, the Binks booth will feature an array of industrial finishing equipment, including spray guns, material handling pumps, stand pipes, automatic finishing machines controlled by Binks memory timers, and air supply fans.



Binks Dispo Booth, one of the items of spray finishing equipment to be exhibited at Booth 138 by Binks Mfg. Co., at the National Metal Show in Detroit.

Also to be shown is the latest in multiple component plastic spray and pour equipment, including the Binks Turbulator and Formulator units, gel coat system, and fiber glass reinforced plastic spray guns.

Binks Mfg. Co. of Canada, Ltd., is at 14 Vansco Road, Toronto, Ontario, Can.

H. Bolwell, V.P. of Midland-Ross

Mr. Harry J. Bolwell has been elected V.P. of Midland-Ross Corp., and general manager of the company's Surface Combustion Division. Mr. Bolwell was formerly general manager of the Chattanooga Division of Combustion Engineering, Inc. He succeeds Eugene P. Heiles who will retire from the company early next year.

Mr. Bolwell joined Combustion Engineering in 1954 as assistant chief engineer of the company's Nuclear Division. He was elevated to manager of the Nuclear Components Department in 1956 and was named general manager of the Chattanooga Division in 1958. In the latter capacity, he was responsible for operations of the division's five manufacturing plants, including the Nuclear Components Department.

Sprayers' Respirators or Breathing Masks

GETTING sprayers to wear respirators or breathing masks has always been a difficult problem—and it has not been simplified by the attitude of management toward enforcing a spray-mask rule. In fact, there has been little or no agreement, even among health or safety authorities, concerning the limits of conditions that should make the use of a mask mandatory.

One plant may ignore such equipment completely. The next may furnish masks and then consider the job finished. This often results in a row of masks hanging on nails but none of the men's faces. Still another firm will insist that all operators wear the masks while spraying. Yet, the plant that insists on this wearing of masks may have ventilation and equipment that assures air that is fresher and purer than you will find in the average living apartment; and the company that ignores the matter may provide a continual fog of dust and overspray.

Sprayers themselves are not of a single mind either. There are those who would not step into the area without carefully adjusting their masks. Others will only wear them under threat of discipline. In general, there is some resistance—a natural resistance to anything that encumbers. Sometimes that resistance is bolstered by tales of the old-timer who would stuff vaseline in his nostrils, place a paper bag on his head

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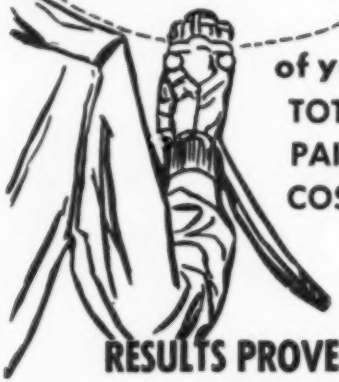

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and, with only a bandana over his face, he would spray the entire inside of a truck body. And, the teller is still alive.

Personally, or in dealings with other men, the attitude of this writer has always been, "Better to be safe than sorry." For sanitary reasons I don't want the stuff in my nose. As for the lungs, while it may never do any detectable harm, I'm sure it will never do them any good. While the toxicity of most finishing materials is of a fairly low order, the industry has some bad memories of promising products that belatedly showed rather lethal properties.

Compensation awards have taken strange turns, so it is foolish to take any risk that need not be taken. Foremen should bear this in mind.

There is one thing that cannot be argued: In comfort and in efficiency spray masks have come a long way. Gone forever is the heavy hard protuberance with its foul smell and rattling valve. The miracle of plastics has contributed soft shapes that mold to the face without the need for tight headbands. Foams make filters that offer practically no interference with breathing, and still arrest the smallest of dust particles. And, the masks weigh less in ounces than some of their ancestors did in pounds. However, they still have retained one of the great virtues of their predecessors: They restrict conversation. They are good insurance, but only if they are used.—*K. Mac.*

G-E Silicones Names New Sales Representative

Neil E. Billman has been named East Central District sales representative for the Silicone Products Department of General Electric. His office location is at 21590 Greenfield Rd., Oak Park, Mich.

Headquarters for General Electric silicones operations is in Waterford, N. Y., which serves as the central location.

Epoxy Primers; Thinners; Follow Directions

NO ENAMEL or lacquer product today can be considered as being completely foolproof and problem free. By the same token no industrial finish contains all advantages and no disadvantages. With this in mind we can proceed to a major problem in using epoxy primers.

One of the advantages to be gained in using epoxies is the exceptional adhesion characteristics that can be obtained. Where many prior materials have failed adhesion-wise, it is probable that an epoxy-based coating will answer the purpose. For this reason primers utilizing this type of resin are finding wider acceptance throughout the industrial finishing area.

Many materials that cure by catalytic polymerization or oxidation have the disadvantage of lifting when the topcoat is applied. Epoxies are no exception. Knowing this, the manufacturers of epoxy primers have formulated their products so that if the directions and instructions for application are followed, the problem of lifting can become practically nonexistant.

However, finishers in the industry are an observant group and a number of them have found that most lacquer thinners may also be excellent thinners for epoxy-based coatings. In fact, some finishers use lacquer thinner for all coatings, melamine alkyds included. Unfortunately, complications may arise as a result

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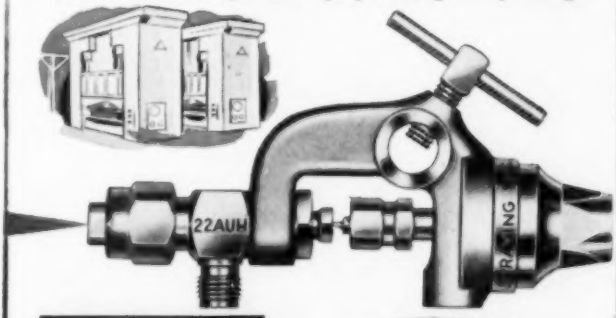

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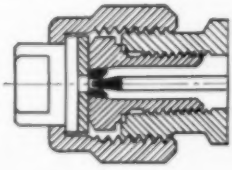

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For more data, circle 228 on colored card.

of this practice. Sometimes the lacquer thinner contains a slow-evaporating non-solvent for epoxies. While mixing the wet material in the container the thinner blends nicely with the primer, but on drying only a spongy soft precipitated film is formed. Of course, this is unsatisfactory.

Should the lacquer thinner be one of high lacquer blush-resistance it will probably contain a very slow-evaporating solvent. The solvent will remain in the epoxy film and prevent complete catalytic polymerization. As a result, lifting or softening of the primer may occur.

In discussing the problems of epoxy primer it is not intended to infer that this is a tricky and difficult material to handle. Rather it is more important to stress what can happen if an improper procedure is followed. To summarize, it can be stated that epoxy-based primer coatings are excellent but they have limitations in some cases. In order to obtain best results one should follow directions. When this is recognized by the finisher he may find another valuable tool in his chest of finishing know-how.—*Norwell.*

Static Electricity Book

A newly revised book on controlling the fire hazards of static electricity has been issued by the National Fire Protection Association.

The 1961 edition of "Static Electricity," a complete revision of the previous publication on this subject, contains a discussion of the theories of static electricity generation and dissipation. These theories are then applied to the handling and use of flammable liquids, gases, dusts and fibers. Certain specialized industrial and commercial processes and equipment are mentioned, along with a discussion on the various types of static detectors.

Copies of the book (NFPA No. 77M, 60 pages, $1.00) are available from the National Fire Protection Association, 60 Batterymarch St., Boston 10, Mass.

Dust Trouble Caused by Static Electricity

SOME TIME AGO I discussed the question of static charges and its relation to the rate of settling or attraction of dust to finished surfaces.

Recently I visited a large plant where it seemed that, even though they had taken abnormal precautions, there was nothing they could do that would prevent an excess of dust from settling on the parts being coated. The spray room received filtered air and the air pressure in the room was kept slightly higher than surrounding areas, so that any free air flow was always out and not in. Even the walls and floors were wet down. Still, with all of these precautions a dust-free finish could not be obtained.

The coating being applied was a catalyzed epoxy enamel designed to provide an organic film which had a minimum of water and oxygen permeability.

While looking through one of my college physics texts I came across a discussion of electrostatic induction in gasses and air; and other basic principles of motion of electric charges, electrostatic forces, etc. What really caught my eye was the chapter which stated that, "two conductors separated from each other by some insulating medium form a condenser; the conductors are often called the plates of the condenser and the insulation is called the 'dielectric.'"

It was the word "dielectric" that caught my eye, for epoxy resins in

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general have been well advertised as having high dielectric constants; they are very high in electrical insulation. Since here we were experiencing a conductive metal part being insulated from a charged atmosphere in the exact form of a condenser, it would seem that static charges were causing excess dust attraction.

Without resorting to any formulation changes, and being concerned with solvent polarity, it was decided to try two approaches. One required the use of an anti-static compound put in the epoxy enamel, and the other was the use of the same epoxy vehicle, but the pigmentation was confined to a high percentage of fine lining aluminum paste. This aluminum pigmentation had solved an electrostatic problem for us some years ago.

Parts were sprayed with: 1) the regular epoxy enamel as the control, 2) the enamel with the anti-static additive, and 3) with the aluminum epoxy enamel. After the film had become dry it was examined under magnification. The aluminized part contained only a minute amount of dust. The anti-static material was not quite as good, but it was acceptable and both were by far better than the control film.

On the basis of this test it would seem that electrostatic dust attraction may be more of a problem than most people realize. In fact, it may be that most dusting problems are electrostatic in nature. In this case, by changing the insulating epoxy to a conductive coating we were able to eliminate the dust attraction. It would seem plausible that some of the anti-static devices we have heard about for the industrial finishing industry would be worth investigating. —*N. Gaynes.*

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THE **GYROMAT CORP.** KINGS HIGHWAY CUT-OFF FAIRFIELD, CONNECTICUT

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Smooth Floors Prevent Damaged Finishes

I DON'T KNOW of anything more discouraging than to finish a truckload of work, knowing that every piece is perfect, and then having part of it damaged (or all spilled) on the way into the oven. Every finisher knows that disgusted feeling one has when the parts on trays or racks start to shift and touch each other while being transferred by factory truck from one area to another.

While such accidents can happen on smooth level floors, both the frequency and the extent of damage will rise sharply when the floors become rutted and bumpy. This is only one of the many costs that can be charged up to bad floors, but it is certainly the most important to finishers. They know that the cost of damaged goods can mount up and up until, at the end of a year, they reach fantastic heights.

Until recent years there was some excuse for neglecting floor repairs. To do a decent job on a cement floor involved a lot of chipping and gouging, followed by the always messy work of preparing, handling and applying wet cement. Wood floors were no easier either, if one wanted to do a workmanlike, thorough job. Yes, there were some all-purpose patching materials, but they left much to be desired. They lacked adhesion in thin patches, were dirt catchers in their own right, and were completely lacking in resistance to solvents. [*Continued next page*]

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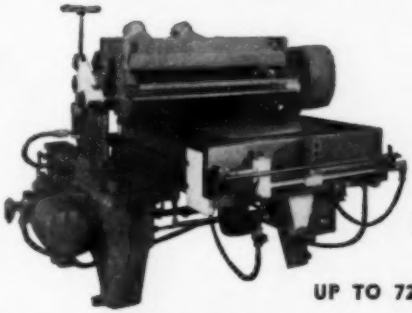

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Epoxies and polyesters are two materials that have changed this picture of floor repairing. Both have had much publicity in recent years. Properly formulated, they make ideal repair materials. Polyesters are usually preferred for wood floors, while epoxies are best for cement.

There are several qualities in epoxies and polyesters that contribute to this superiority. Being catalyzed materials, they can be applied in near enough liquid form to penetrate every crack, thus assuring good mechanical adhesion. Catalyzing assures a reasonably fast cure, with practically no shrinkage. Most important in finishing rooms, is the immunity to almost every solvent, and a surface that will defy abrasion far better than the original substrate. To make the surface abrasive-like for safety, sand or other abrasive can be imbedded on the surface or put in the mix.—*Ken.*

Chicago Representative For Dry Clime Infrared Ovens

D. J. Pollingue, Jr., has been appointed sales representative for the driQuick line of ceramic-type electric infrared industrial ovens, manufactured by the Dry Clime Lamp Corp., Greensburg, Ind., for Chicago and the northern half of Illinois. Mr. Pollingue has had extensive experience in infrared drying equipment.

Mr. Pollingue offers driQuick's complete free field testing service, with portable field drying equipment brought into any plant upon request for in-plant demonstrations with the plant's products and personnel. He also carries a line of related finishing equipment and offers complete engineering and installation service. His sales office is in Rm. 301, 4010 West Madison St., Chicago, Illinois.

Now It's An Inspection And Touch-up Station

RECENTLY I made a service call to a kitchen cabinet plant where I noticed a comparatively small dry spray booth, the back wall of which was made up of paint arrestors. The booth was located on the conveyor line just ahead of where cabinets left the finishing department to travel to the assembly line. It was during down time, so no painting was being done.

I was curious, and asked why this booth was located at this particular area when the cabinets were finished on an automatic finishing system, using electrostatic application. The answer was simple.

The plant had been operating about ten years. When they started, all of the cabinets were finished in white enamel. The toe-kick plate on the lower sections required a black enamel finish. This was applied by an operator using a small spray gun and a light weight metal shield (to prevent any overspray from getting on the white surface) in this dry booth.

During later years other products were added to the line. A flow coater was installed to apply black enamel to interior concealed parts, and the toe-kick plates on the cabinets are now painted black in the flow coater. The booth became obsolete, but it was not discarded.

Now kitchen cabinets are finished in many pastel colors, so the company moved the little dry booth up close to the end

KILL STATIC WITH A GUN!

Simco Ionizing Air Guns will put an end to static woes in any finishing operation! Plastic parts are blown clean, while being neutralized, so that dust, dirt and lint are *completely* removed and will not be reattracted! This new electronic air gun is safe, easy to use, and ***guaranteed*** effective! Write for facts.

the SIMCO company
920 Walnut Street, Lansdale, Pa.

For more data, circle 209 on colored card.

of the line, installed true north light illumination and now it serves as an inspection and touch-up station. The inspector has all standard colors available in the booth, and I was told that he is a spot spray artist.

Obsolescence may render a piece of equipment surplus, but if it is good equipment it can sometimes be used for other purposes, and it will be of far greater value than the price it would bring as used equipment.—*J.M.*

C. M. Dauderman Joins O'Brien Research Staff

Charles M. Dauderman has joined The O'Brien Corp., South Bend, Ind., as a chemist in its Industrial Laboratory.

Research and formulation of paint for roll or strip coating operations will be the chief responsibility of Mr. Dauderman who will report directly to H. N. Grayden, technical director of the paint manufacturer's Industrial Finishes Division.

For three years prior to joining O'Brien in July 1961, Dauderman was a chemist in industrial finishes with another large company.

O'Brien is extremely active in both the research and production of special paints for roller coating application. In a very short period, pre-coated aluminum siding for homes, and roller coating of other materials in strip form, has blossomed into "big business." Today, high-speed presses in the roller coating industry are capable of applying different paint colors to both sides of strip metal, simultaneously, at speeds up to 100-ft. per minute.

Air Filter Co. Promotes Two

Two Louisville officials have been promoted by American Air Filter Co., Inc. Charles D. Wright, Air Filter Division, has been named Southern Regional Manager. Robert F. Logsdon, Assistant Chief Engineer for the Reed Division (Louisville), has been appointed Manager of Engineering for the Reed Division.

Wright, currently in the firm's Home Offices, will eventually move to Atlanta to be more centrally located within the region.

For more data, circle 210 on colored card.

● SUPPLIES
● MATERIALS
● EQUIPMENT

Synthetic Pearl Pigment

Rona Pearl Corp., East 21st St., Bayonne, N. J., a division of Rona Laboratories, Inc., announces production of a new synthetic pearl pigment series 320. This product has a very low degree of sulphide stain. Other properties are its excellent high heat stability, its luster and brilliance.

Synthetic Pearl Pigment 320 is available as a concentrate dispersed in dioctyl phthallate and vinyl solutions for use in vinyl film and coatings. This product has met with enthusiastic acceptance in the vinyl industry. It is also being evaluated for other applications. Samples are available upon request.

For more data, circle 1 on colored card.

DeVilbiss Cabinet Ovens

Standard cabinet ovens suitable for batch production, limited production runs or experimental work requiring temperatures from 150° to 500° F. are now available from The DeVilbiss Co., Toledo 1, Ohio.

These industrial type ovens in compact sizes are designed for use in shops, laboratories, schools, and industrial plants, and are available in four sizes, three heating capacities and for electric or gas heat. They are factory assembled and test operated. All exterior surfaces are prime painted prior to shipment in ready-to-connect condition.

Features include 4-in. Fiberglas insulation on top, sides, back, floor and door; 20-gauge steel, leakproof construction with minimum amount of through metal, safety pressure release door latch; two sliding shelves designed for free heat flow, with additional shelf guides built into each

Gas or electric; 150° to 500° F.; four sizes.

model; horizontal heat flow from directly connected blower and motor, with capacity adjusted to size; gravity type exhaust with power system available, and direct-reading automatic temperature control, with recording type controller offered as an accessory.

For more data, circle 2 on colored card.

Stainless Steel Pump For Corrosive Fluids

A new pump for handling high volumes of light and heavy viscosity corrosive fluids has been developed by Binks Mfg. Co., 3120 Carroll Ave., Chicago 12, Illinois. It safely handles materials such as chemicals, foods, dyes, acids, water mixes, caustics, solvents, cleaning fluids and other similar liquids.

Called the Pogo Hi-Volume SS (stainless steel) it is made to pump from 55-gallon open-top containers. It is available with either a clamp or cover mounting.

The pump features an all stainless steel fluid section, so that any material passing through the pump comes into contact with stainless steel only.

New Pogo Hi-Volume SS pump is shown with a cover mounting, but it is also available with a clamp-on mounting.

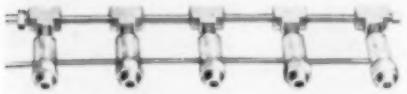
The pump is air operated, with a 5 to 1 pumping ratio. Recommended delivery for continuous duty is 1.75 gallons per minute, with maximum delivery rated at 2.5 gallons per minute. Air consumption is 2-cu.ft. per minute per gallon of material pumped.

It has a new design air motor—a double acting high speed poppet type air valve operating in an impact extruded aluminum air motor cylinder. Fluid valve seats are removable and reversible for maximum service life. The pump is available with or without pump elevator and material agitator.

For more data, circle 3 on colored card.

Simco Anti-Static Devices

Three new types of static eleminating equipment are specifically designed for cleaning dust and dirt from plastic parts, plastic and paper sheets and films, textile materials, rubber, leather and all other types of surfaces to which the dust is attracted and held electrostatically. They are products of The Simco Co., 920 Walnut St., Lansdale, Penna.



A mounted row of ionizing air nozzles for removing static electricity which attracts dust during and after production operations.

In the new static bars, provision is made for simultaneously blowing off the dirt and neutralizing the static charges on both the dirt and the part being cleaned. This simultaneous action is much more effective than other cleaning methods such as brushing or wiping, since not only is the dust completely removed, but the electrostatic forces tending to re-attract it to the part are eliminated. [*To p. 122*]

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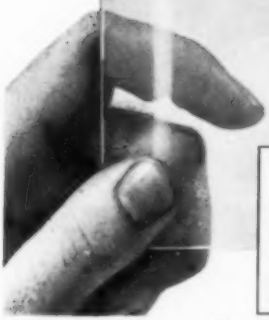

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PAINT ROOM SUPPLY COMPANY

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One of the new devices, the Air Type Shockless Bar, incorporates an air tube with openings opposite each point, and can be made in any length to fit the application. The second device, the Ionizing Air Gun, is a hand held compressed air gun with a static eliminator built into the nozzle. The third device is an Ionizing Air Nozzle, which is essentially the working end of the air gun. The Nozzles can be furnished singly, or in a series mounted on an air feeder tube, and are available in different shapes and sizes (such as with flat orifices or of angle construction) for fitting to different types of machines.

A small power pack, operated from AC service, will energize a number of the air-type shockless bars or the ionizing air guns or nozzles. Compressed air facilities must be provided by the customer. A solenoid air valve, furnished as an optional accessory to turn the air on and off automatically, can be activated directly from the electrical machine controls or by means of a cam operated limited switch.

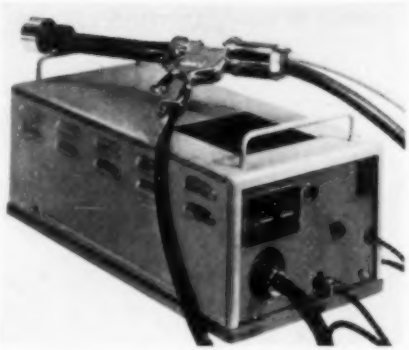
While the Ionizing Air Gun is particularly useful for manual operations the nozzles and the air-type shockless bars are more practical for automatic and continuous operations.

For more data, circle 4 on colored card.

Electrostatic Hand Gun Sprays Powders

A new electrostatic hand spray gun capable of coating even intricate shapes with plastic or enamel powders is announced by Sames, 30 Broad St., New York, N. Y. The portable unit can also be used for other applications ranging from crop spraying with insecticides to textile and paper coating.

Called the Stajet, the equipment consists of an electrostatic generator,



Sames electrostatic spraying outfit.

a spray gun with an anti-sparking head; and a powder reservoir with vibrator.

In operation, emerging coating particles are electrically charged and then directed to, and evenly deposited on, any object within the influence of the electric field. Since the charged particles are all deposited on the object there is no coating wastage. In many cases the whole object can be coated by directing the gun to only one face of the object. Voltage is essentially constant for all spraying distances; current adjustment as a function of powder flow is automatic; no manual intervention is needed. Subsequent processing by heat or baking firmly bonds the evenly distributed plastic or enamel powders into a smooth coat.

For more data, circle 5 on colored card.

Teflon-Sealed "Cable-Way" Trolley for Conveyors

A new "Cable-Way" overhead conveyor trolley with teflon-sealed ball bearing wheels has been announced by the Conveyor Division of The American MonoRail Co., Fourth & Franklin St., Tipp City, Ohio. It was designed for conditions where grease

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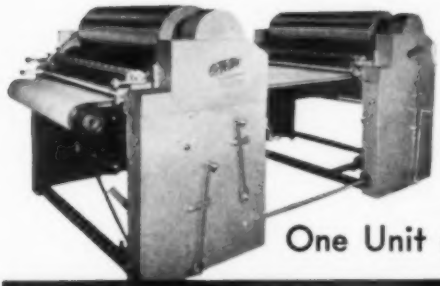

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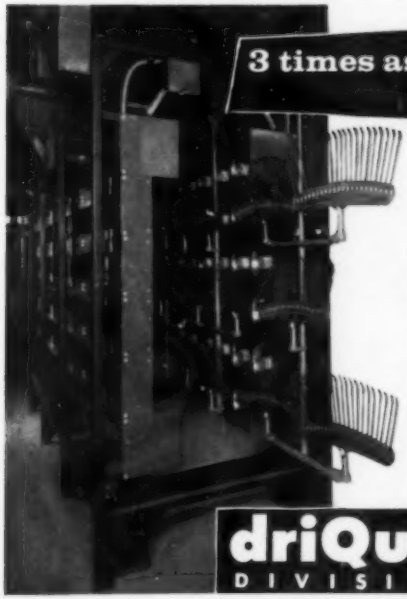

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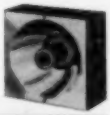
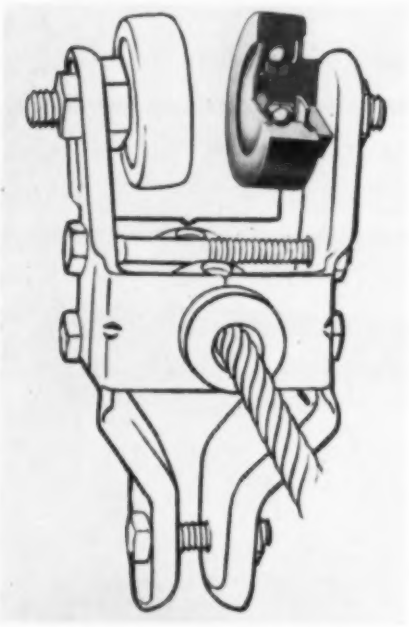


driQuik DIVISION **DRY CLIME LAMP CORP.** GREENSBURG, INDIANA

For more data, circle 214 on colored card.

or oil drippage would be detrimental to the product, and for medium temperature oven applications.

The new trolley utilizes specially-designed teflon grease seals for greater rollability at both room or medium oven temperatures. The seal is moisture-resistant, chemically inert, heat-resistant, and has an extremely low co-efficient of friction. The wheels are permanently lubricated with a high temperature grease. Steel balls used are ¼-in. in diameter.



The thin Teflon inner seal fits alongside the washer-shaped metal retainer.

The capacity of the trolley illustrated is 250-lbs. (125-lbs. per wheel). "Cable-Way" trolleys are components of overhead conveyors manufactured by the Conveyor Division, The American MonoRail Co.

For more data, circle 6 on colored card.

DeVilbiss' New Paint Pump

Addition of a 1.5-to-1 ratio paint pump to its line of fluid handling equipment has been announced by The DeVilbiss Co., Toledo, Ohio.

The new pump is expected to be of particular interest in furniture manufacturing, other light manufacturing and industrial maintenance fields.

Models are available for use with 55-gallon drums, paint circulating systems, 5-gallon pails, transfer pumping service, and for use with corrosive liquids. The latter features nickel-plated steel or brass, stainless steel or aluminum for parts in contact with the fluid being pumped.

The double action pump has the capacity and pressure to supply two large, production-type spray guns directly connected by hose lengths, or to meet the requirements of a small circulating system.

For transfer pumping, it will empty a 55-gallon drum in six minutes.

A full line of accessories is available, including lid assembly, double regulation kit, transfer kit, power agitator and fluid hose.

For more data, circle 7 on colored card.

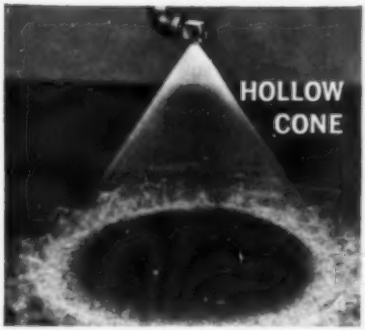
New Paint Arrestor Filter

A new glass-fiber paint arrestor pad that gives low resistance to air flow and has high absorption qualities, is announced by American Air Filter Co., Inc., 215 Central Ave., Louisville 8, Ky. The AG Paint Arrestor Pad is designed to fit into existing standard holding frames, and needs no grids or other accessories.

According to the manufacturer, one 2-in. AG pad does the work of two 1-in. pads now commonly used and provides a simplified and effective methoding of arresting paint spray.

AG Pads are specially engineered

STEINEN SPRAY NOZZLES



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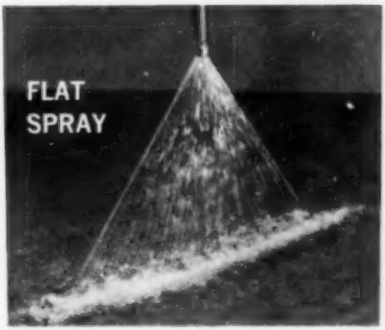

TAN-JET NOZZLES — Specially designed non-clogging, corrosion resistant nozzles for phosphate coating. Complete range of capacities and spray angles. Available in Stainless Steel, Steel, Brass, PVC, Hard Rubber, etc.

FAN-JET NOZZLES — Flat, high impact, sharply defined spray pattern for washing, coating and rinsing. Full range of capacities and spray angles. Choice of materials — — Stainless Steel, Steel, Brass, PVC, Hard Rubber, Teflon, etc.

Write for complete details . . . Catalog 59 and Data Sheets

STEINEN

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INDUSTRIAL NOZZLE DIVISION
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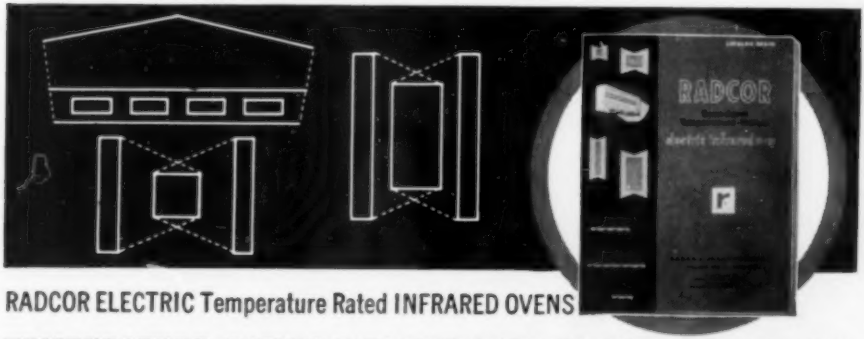
For more data, circle 215 on colored card.



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B-4

For more data, circle 216 on colored card.

for the spray booth field with fiber glass filiments becoming progressively denser from the air entering side to the back of the pad. This graded density resists "face loading" and provides greater efficiency and longer service.

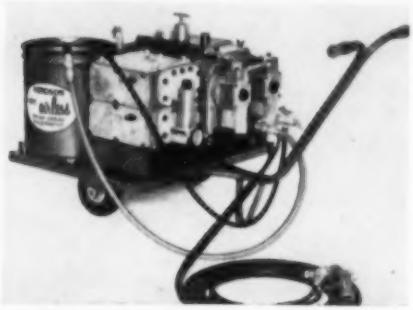
AG pads are green on the air leaving side and white on the other side; they are non-clogging and permit a free flow of air, therefore there is less "drag" on the exhaust fans. Fans, motors and ducts stay cleaner because less paint spray gets through the pads; more overspray is caught. and absorbed by the pads. Paint spray readily sinks into the pads with less splatter and "bounce back," resulting in cleaner spray booths. An entire bank of AG pads can be changed in a matter of minutes.

For more data, circle 8 on colored card.

Nordson's Model AP-6800 Unit; Portable Hot Airless Spray

The Nordson Corp. of Amherst, Ohio, manufacturer of airless spray painting equipment, announces a new dolly-mounted hot airless spray unit known as the AP-6800. This compact, mobile model includes a Nordson AP pump together with two Nordson high-pressure paint heaters and a filter. Provisions are made on the dolly to mount a standard 5-gallon bucket of paint. The new Unit is of particular value where painting is done at several locations or where painting of heavy equipment is done on an open floor.

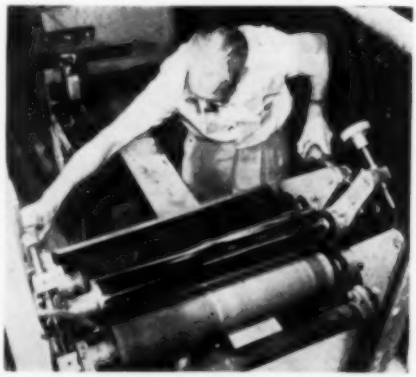
For more data, circle 9 on colored card.



Includes a pump and two paint heaters.

Roll-Coating Alodine To Aluminum Coil

Amchem Products, Inc., Ambler, Pa., has introduced a compact and simple method of roll-coating "Alodine" on aluminum coil used for awnings, siding, other building products and household appliances. Alodine is a prepaint, corrosion-resistant amorphous chromate—a chemical conversion coating for aluminum.



Adjusting the rollers in new roll-coating process of applying "Alodine" prepaint and corrosion-resistant coating to aluminum coil.

Although the wash and rinse stages remain unchanged, the new roll-coating stage, according to Amchem, saves approximately two-thirds of the floor space formerly required for the spray or dip stage, and reduces the time required for treatment with Alodine from 15 to 5 seconds.

Only sufficient quantities of Alodine to wet the aluminum surface are re-

quired. The Alodine solution is never reused; this eliminates the need for chemical control of the bath or the use of reactifying equipment to remove harmful contaminants.

For more data, circle 10 on colored card.

Portable Compressor for "Airless" Spray Painting

The new Eclipse 555-80 compressor will operate an airless painting pump at commercial, industrial speed from ordinary 110-volt house current.

Designed for increased compactness and portability, this new ¾-hp. compressor measures 22-in. long, 14-in. wide and 24-in. high; and weighs 137 lbs. An integral unloader is built in the cylinder head so the compressor runs only when actually needed.

Other features include 10-in. rubber tired wheels with ball bearings, adequate storage and pulsation chamber with drain cock, 15-ft. of heavy duty rubber covered cable, and a large intake muffler and filter. Manufacturer, Eclipse Air Brush Co., 400 Park Ave., Newark 2, N. J.

For more data, circle 11 on colored card.

Pearl Pigment Powder Offered By Rona Pearl Corp.

Rona Pearl Corp., East 21st St., Bayonne, N. J., a division of Rona Laboratories, Inc., announces pilot plant production of a non-lead synthetic pearl pigment in dry powder form. This product has been produced to fill the demand for a dry powder which would readily disperse in various thermo-plastic and thermo-setting resins. Heretofore this product had been supplied either in paste dispersions in plasticizer or solvent con-

NOW IN USE COAST-TO-COAST!

Brass wire mesh strains paint perfectly. Conical design fits all intakes. Cone slips on easily...locks in place...stays put. Foolproof. Lasts longer. Costs less. Eliminates pre-straining. Re-orders prove popularity.

EASY TO USE

1 Insert cone into intake pipe
2 Snap lock ring around collar
3 Wash coat cleans it automatically

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STRAIN E·Z COMPANY
4853 LOUISE STREET
SKOKIE, ILLINOIS

For more data, circle 217 on colored card.

centrates, or precompounded as a master-batch into specific resins.

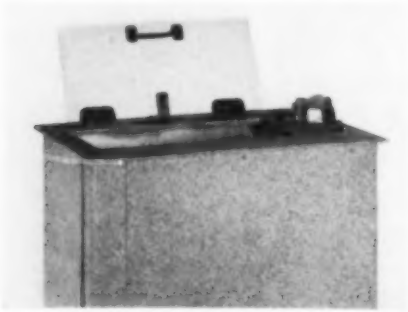
This non-lead synthetic pearl pigment, designated NLD, is free of all solvents, plasticizers, resins and other vehicles; it is heat stable, non-toxic, and has a high degree of luster and brilliance, and a comparatively low degree of sulphide stain. Concentrations of between ¼% to ½% produce excellent pearl effects.

In many instances this product can be used by simple tumbling with clear or colored molding resins and then directly molded without precompounding. Optimum pearl luster and brilliance is, however, obtained with precompounding and in a Bambury, on a roll mill or in an extruder. Samples are available.

For more data, circle 12 on colored card.

Pressure Spray Washing of Masks Is Fast

A new high pressure spray washing machine for cleaning masks used in the spraying of mass produced products has been developed by Conforming Matrix Corp., 765 New York Ave., Toledo 11, Ohio. It is the seventh automatic washer in the Conforming line and fills a demand for equipment, which in size, comes between two smaller agitation-type cleaners and four larger high-pressure spray units.



This is only the upper part of the washer.

Known as Model W-1600, it handles masks as large as 16x16-in. and holds five gallons of cold strip solvent, to clean three times as fast as an agitation-type cleaner which requires 15 gallons of solvent. Consumption of solvent is extremely low.

In the removal of accumulated paint, there is a saving of up to 50% in time and labor over that required by manual soaking, brushing and cleaning. It also removes the fire hazards of open solvent-washing tanks or pans and averts costly production delays due to the damaging of the fine wire bridging on masks by hand scrubbings. Every mask is thoroughly cleaned, including the smallest openings. Ordinarily, up to 20 wet coats of paint are removed in 20 seconds.

For more data, circle 13 on colored card.

Water Base Coatings For All Metals

Bee Chemical Co., 2700 E. 170th St., Lansing, Ill., offers the Lacqua system—a new corrosion protective method of applying a water-base coating to all metals.

Lacqua is thinned with common tap water. No special equipment is required other than a clean dip tank. Lacqua M-802 and Lacqua M-804 are thinned in varying proportions, but field experience indicates that thinning as high as equal proportions for either product can result in satisfactory corrosion-resistance properties in many applications.

The new Lacqua M-802 and M-804 coatings give you improved protection against tarnishing, fingerprinting and production handling marks, while eliminating fire hazards and reducing shop toxicity dangers.

For more data, circle 14 on colored card.

For Your Convenience

Use INDUSTRIAL FINISHING magazine's "Reader Service" return cards to obtain further information on products described and illustrated in the "Materials; Supplies; Equipment" section which precedes this page; also to receive further information on what manufacturers have to offer—literature, products, supplies, services, etc., as mentioned on the following pages.

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On what's the latest in organic finishing operations, read all of the following items about new materials, equipment and services offered by advertisers in this issue.

Industrial FINISHING

October, 1961, Issue

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Some of the returned cards we receive are not filled in correctly—and we cannot read a few of the hand written names and addresses. Before returning a card, please check to see if it is marked correctly—and legibly, including your name and address. Thank you.—*Editor.*

Non-Grain-Raising Stains, lacquers and everything for finishing fine furniture, cabinets, pianos, etc., plus styling and technical service—in Southeast U. S. A., are available from Snyder Bros. Co., P. O. Box 631, Toccoa, Georgia.

For more data, circle 16 on colored card.

"Spax" Multicolor One-Coat Finish by V. J. Dolan & Co., Inc., 1830 N. Laramie Ave., Chicago 39, Ill., gives a combination of two or more harmonizing colors in one coat with standard spray equipment. For finishing wood, metal, plastic, concrete and all types of composition board. Hides surface irregularities. Color card showing sprayed (not photographed) multicolored combinations available.

For more data, circle 17 on colored card.

Dupor No. 4 Respirator has double filters for easy breathing and greatest filtration of paint spray, dust and fumes. Soft rubber face mask gives an air tight fit. Patented Dupor valves bring in clean air and throw off breathed air. Weighs only 4-oz. H. S. Cover Co., P. O. Box 2508, South Bend 14, Indiana.

For more data, circle 18 on colored card.

"Dulux Enamels" are the one-coat enamels that add sparkling sales appeal and protection against exposure. One coat gives a hard, high-gloss finish that withstands sunlight and temperature extremes; resists chipping, cracking and aging. Can be appplied by hot, cold or steam spray. E. I. duPont deNemours & Co., Finishes Divn., Wilmington 98, Dela.

For more data, circle 19 on colored card.

"Strain E-Z" Paint Strainer of brass wire mesh strains paint perfectly. Conical design fits all intakes; cone slips on easily and locks in place, stays put. Is foolproof, lasts longer, costs less, eliminates prestraining. Homogenizes paint, assures an even flow. Strain E-Z Co., 4853 Louise St., Skokie, Ill.

For more data, circle 20 on colored card.

Water-Soluble Melaqua 600 Melamine-Acrylic Resin is non-flammable yet delivers high gloss, hard finish, resistance to weather and heat. Melamine resin makes Melaqua 600 hard and solvent-resistant. Acrylic polymer produces smoother films and cleaner, brighter colors and is the first of a new family of water-dispersed thermosetting industrial coating resins. American Cyanamid Co., Plastics & Resins Div'n., 30 Rockefeller Plaza, New York 20, N. Y.

For more data, circle 21 on colored card.

Drum Dolly. A steel X-frame within a circle steel band and mounted on 4-swivel casters will take upright drums weighing as much as 700-lbs. Makes the load easy to move. Morse Mfg. Co., Inc., 763 W. Manlius St., E. Syracuse, N. Y.

For more data, circle 22 on colored card.

Guardsman Styled Furniture Finishes are offered by the Grand Rapids Varnish Corporation, Grand Rapids, Mich., emphasizing refreshingly new decorator hues like many toned coffee-walnut, dramatic ebony, mahogany and fruitwood cherry.

For more data, circle 23 on colored card.

"EP-9606" Enamel Primer for basement sash, registers, fans, grilles, steel windows and air conditioning equipment is high in quality and low priced. Can be reduced with xylol and toluol or less expensive alphatics such as mineral spirits. Free sample available. Gottlieb Chemical Co., 8052 Barnes, Detroit 17, Mich.

For more data, circle 24 on colored card.

Vapor Degreasers, Ultrasonic cleaning equipment and solvent dryers, for quality cleaning and degreasing your products, are available from Phillips Mfg. Co., 3475 W. Touhy Ave., Chicago (Lincolnwood) 45, Ill. Free illustrated brochures are available on each of these types of cleaning equipment.

For more data, circle 25 on colored card.

"Mersostrip" alkaline paint stripper for tank use (all you add is water), contains accelerators to rapidly and effectively disintegrate paint. Removes acrylics, lacquers, epoxies and enamels. Merostrip makes long-lasting solutions that rinse freely. A Wyandotte representative can give a free demonstration. Wyandotte Chemicals, J. B. Ford Divn., Wyandotte, Mich.

For more data, circle 26 on colored card.

Alcoa Aluminum Pigments come in a wide range of colors, and provide durability and good appearance when used in metallic finishes for coating various metal products, such as fine office furniture. Aluminum Co. of America, 1757-K Alcoa Bldg., Pittsburgh 19, Penna., can give you complete information on the merits and use of Alcoa aluminum pigments.

For more data, circle 27 on colored card.

Operation "Curtain Coater" is the newest addition to Spruance Advanced Research. New finishes are tested, custom finish service has been extended and new techniques developed. Curtain Coating details and coatings for this process are available. The Gilbert Spruance Co., Philadelphia 34, Penna.

For more data, circle 28 on colored card.

Restore Paint to its original consistency without opening the container, whether in ¼-pint cans or in 55-gallon drums. Time required is only 2-minutes per gallon. Full information from Miracle Paint Rejuvenator Co., 128 E. 10th St., St. Paul.

For more data, circle 29 on colored card.

Gasway Strip-Coater shaves down strip coating costs. Complete kit on Gasway strip coating features descriptive literature, case histories and pertinent detailed information. This strip-coater gives smoother finishes and eliminates excess waste and down-time. Gasway Corp., 6363 N. Ravenswood Ave., Chicago 26, Ill.

For more data, circle 30 on colored card.

Airless Finishing to the most exacting requirements can be produced with the H-Gun and the Spee-Flo HydraAirless unit. H-Gun produces a full feathered spray pattern with total atomization. Documented reports of successful installations in the finishing industry are available. The Spee-Flo Co., 6614 Harrisburg Blvd., Houston 11, Texas.

For more data, circle 31 on colored card.

Dry-off Ovens, Baker Ovens, washing machines, Bonderizing units, dip tanks, spray booths, flo-coaters, conveyors, etc., are a few of the many types of finishing equipment offered by Michigan Oven Co., Finishing Equipment Dept., 423 Brainard, Detroit 1, Mich. MOCO Bulletin showing typical finishing system applications and specifications is available.

For more data, circle 32 on colored card.

Nacromer Silver Finishes are bright; have lustre and sparkle. By applying a top coat of Nacromer over the appropriate base pigments, you get a clear lustrous silver, free of "tattle-tale grey." Nacromer may also be used to create tarnish-proof brass and bronze finishes. Nacromer is compatible with most coating vehicles and can be applied to almost any material by the usual coating methods. Revised edition of 8-page Nacreous Pigment Handbook now available. The Mearl Corp., 41 East 42nd St., New York 17.

For more data, circle 33 on colored card.

Clearcopper, Clearbrass and Clearchrome by Cosden Paint Co., Beverly, N. J., are three non-fading finishes for use on light fixtures, etc. Can be applied by hand spray, dipping and electrostatic systems and conform to high conveyor speeds and fast bakes. Inquiries on finishes and application methods given prompt attention.

For more data, circle 34 on colored card.

Graining Plates of any pattern, size or shape (wood grain, leather, marble, fabric, etc.) for hand or machine graining. American Richwood Products Co., 104 E. Mason St., Milwaukee 2, Wis.

For more data, circle 35 on colored card.

Butyrate Topcoat Lacquers are water-white and non-yellowing; are compatible with the graining inks over which they are used. Butyrate lacquers do not discolor upon aging and can be applied easily with conventional spray equipment or high speed roll-coating machines. Can be force-dried in minutes by infrared or convection ovens. Eastman Chemical Products, Inc., Kingsport, Tenn.

For more data, circle 36 on colored card.

Finishing System for Metal Products is featured by the Despatch Oven Co., Minneapolis 14, Minn. Years of experience and imaginative engineering by Despatch have contributed to installations wherein production has been upped 300%, costs reduced 67% and labor cut 50%. Details on request, including bulletin 100CF.

For more data, circle 37 on colorel card.

Epoxy Resin Silk Screen Inks can be used on glass, ceramics, ferrous and non-ferrous metals and certain plastics; have good resistance to solvents and chemicals. ER Series Color Card and 64-page illustrated catalog, featuring "how to" application data, available upon request. The Naz-Dar Co., Dept. IF, 461 Milwaukee Ave., Chicago 10, Illinois.

For more data, circle 38 on colored card.

"AutoJet No. 22AUHSSTC" with tungsten carbide valve seat and needle, stainless steel body and cap, and Teflon packings, for trouble-free performance, operates automatically at any required cycling speed, controlled by air actuated shut-off valve. Complete choice of interchangeable orifice tips in all spray patterns, capacities and materials available. Bulletin 96, sent upon request. Spraying Systems Co., 3240 Randolph St., Bellwood, Ill.

For more data, circle 39 on colored carl.

Multi-Color Wood Grain printing reproduces the world's selected wood grains. These grains can be reproduced on the close-register Hamant DV-27 Production Graining Machine. Prints in two colors over a third (ground) color. Gives a natural appearance which cannot be duplicated by ordinary methods. Can print assembled work up to 40-in. high. The Hamant Tool Co., Inc., 302 Warren St., Dayton 9, Ohio.

For more data, circle 40 on colored card.

AG Paint Arrestor Pads catch and hold paint. These white fiberglas pads are non-clogging—less "drag" on your fans. Their holding capacity keeps your spray booths cleaner and cuts maintenance upkeep. American Air Filter Co., Inc., 215 Central Ave., Louisville 8, Ky.

For more data, circle 41 on colored card.

Electric Knife Heaters and Burn-in Tools for making quick and skillful repairs to nicked, dented or scratched finishes. The Op-Al Electric & Mfg. Co., 3133 Martindale Ave., Indianapolis 5, Indiana.

For more data, circle 42 on colored card.

Ask About

GRAINING

with plates or cylinder machines

AMERICAN RICHWOOD PRODUCTS CO.

Graining Plate Division

104 E. Mason St. Milwaukee 2, Wis.

For more data, circle 229 on colored card.

RECOVER your Paint Overspray

• REPROCESSED in our plant to conform to its original specification, in both physical and chemical properties, paint waste overspray or sludge can be used again in regular production at considerable savings. Our more than 21 years' experience is customers' guarantee of satisfaction.

PRIMERS—WHITES—COLORS—

• Write for complete details!

Mixed color sludges can be converted to primers.

W. C. RICHARDS CO., 3108 W. Vermont St., Blue Island, Ill.

California Plant: 401 Julianna, Anaheim, Cal.

For more data, circle 218 on colored card.

Add Solvent AUTOMATICALLY

in Flow Coating, Dipping and other Finishing Processes

With NORCROSS VISCOSITY CONTROL

Provides more accurate control by eliminating human error.

Improves uniformity of coating.

Reduces labor and material costs.

Increases operating efficiency by eliminating waste.

Write for Illustrated Bulletin

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268 Newtonville Avenue
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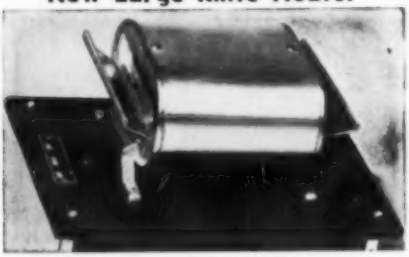
Tel: DEcatur 2-3410

Representatives in Principal Cities and Foreign Countries

For more data, circle 230 on colored card.

New Large Knife Heater



For certain operations requiring a larger (wider or thicker) tool or knife than the conventional patching knife, this new heavy duty heater will take a tool with a blade up to 3½-in. wide.

It is designed for continuous operation on production lines—rated 350 watts and can be furnished for 115-volts or 230-volts. Can also be furnished with a thermostat to 700° F.

THE OP-AL ELECTRIC AND MANUFACTURING COMPANY
3133 MARTINDALE AVE.
INDIANAPOLIS 5, INDIANA

For more data, circle 231 on colored card.

"Catalac" is the catalyst finish in either gloss or satin finish. Is tough, mar-resistant and waterproof; in clear and colors. Saves on baking cost and on forced air-drying time. Consult our laboratory staff technicians for advice on any finishing problem. J. Landau & Co., Inc., Carlstadt, New Jersey.

For more data, circle 43 on colored card.

Formulated Finishes by Randolph Products Co., Carlstadt, N. J., can be for bowling pins, typewriters, furniture, toys, plastics, panelboard, etc. Exactly-right industrial coatings by Randolph give your product sales appeal. Finishing problems are Randolph's specialty.

For more data, circle 44 on colored card.

"Therm-O-Spray" Hot Spray Equipment has no pump, nothing to wear out; no gasket or packing to leak; heat transfer is synchronized with spraying; no overheating of paint, no clogging; preheated atomizing air, therefore no water condensation. Additional units can be added as needed. Thermospray Co., Inc., 155 First St., Mineola, N. Y.

For more data, circle 45 on colored card.

Pearlescent Finishes, air dry or bake, for products of metal, plastic, wood or glass are available from Rona Pearl Corp., E. 21st & 22nd Sts., Bayonne 2, N. J. 12-page Technical Brochure and convenient wall chart on natural and synthetic pearl pigments available upon request.

For more data, circle 46 on colored card.

Tack Cloth for Wiping Dust. It's available in different meshes, in envelopes, rolls or bulk. Lint free, wax free; no danger of spontaneous combustion. Bond Chemical Products Co., 2104 W. Fulton St., Chicago 12, Illinois.

For more data, circle 47 on colored card.

Industrial Finishes, specially formulated for your production line and products, give your products a salable appearance. For a perfect protective and decorative finish for your purpose, consult the Rockford Varnish Co., Rockford, Illinois.

For more data, circle 48 on colored card.

Exposure Test. Actual weathering, corrosion and sunlight tests, direct and under glass for quick predetermination of durability and permanency in southern Florida by South Florida Test Service, Inc., 4301 N. W. 7th St., Miami 44, Fla.

For more data, circle 49 on colored card.

United Lacquer's aluminum coating accents that flawless Art Metal look

Backed by 73 years' experience, the people at Art Metal, Inc., know a thing or two about building fine office furniture. Their designers strive for the ultimate combination of function, appearance, quality and durability. That's why these handsome Art Metal pieces (shown) are protected with United Lacquer's aluminum coating.

Made with Alcoa® Pigments by United Lacquer Manufacturing Co., Linden, N.J., United finishes come in a wide range of colors, protect an impressive list of leading products. (Successful manufacturers know that appearance clinches the sale.) If *your* product needs more durability and better appearance, test an aluminum finish made with Alcoa Pigments.

Alcoa does not make paints, but paint manufacturers such as United Lacquer, working with Alcoa Aluminum Pigments, have developed a wide range of metallic finishes that give extra protection, build sales. Get the facts from your paint manufacturer, or write Aluminum Company of America, 1757-K Alcoa Building, Pittsburgh 19, Pa.

Entertainment at Its Best
ALCOA PREMIERE
with Fred Astaire as Host
Tuesday Evenings, ABC-TV

ALCOA ALUMINUM

PIGMENTS, PASTES & POWDERS

For more data, circle 219 on colored card.

Instant Stripper—For metal or wood finishes. A non-flammable, non-toxic stripper which removes almost instantly, most finishes—enamels, either lacquer or synthetic (baked or air dried), paints, varnishes, etc. V. J. Dolan & Co., Inc., 1830 N. Laramie Ave., Chicago 39, Illinois.

For more data, circle 50 on colored card.

Armorhide Coating is a tough, textured finish resembling leather. Has good abrasion and chemical resistance. Can be applied to assembled metal parts and products; covers all edges making them smooth and free from sharpness. Armorhide bulletin and sample panel are available. John L. Armitage & Co., 245 Thomas St., Newark, N. J.

For more data, circle 51 on colored card.

"driQuick" Infra-Red Ovens have no bulbs or sockets to burn out; temperature can be set to within 1 degree of heat desired; maintenance costs are at a minimum. Can be used on products of wood plywood, hardboard, etc. Field test equipment available to show you what can be done with your product and finishes. Dry Clime Lamp Corp., Greensburg, Indiana.

For more data, circle 52 on colored card.

A MIRACLE PAINT MIXER
INCREASES YOUR PRODUCTION, IMPROVES QUALITY, CUTS COST!
¼ Pt. to 55 Gal. Mixers Available
For Free Catalog Write:
MIRACLE PAINT REJUVENATOR CO.
500 NO. ROBERT ST.-ST. PAUL 1, MINN.
5-Gal. Model

For more data, circle 232 on colored card.

Cellulosic, Vinyloid, acrylic and alkyd coatings for wide range of specialized industrial applications are among the functional finishes manufactured by Varnish Products Co., 5206 Harvard Ave., Cleveland 5, Ohio.

For more data, circle 53 on colored card.

Paint Strainrrs for straining lacquers, enamels, paints or varnishes. Made of heavy paper stock with cloth inserts in coarse, medium, fine and extra fine mesh, 6-in. in diameter. Louis M. Gerson Co., Box 175A, Mattapan, Mass.

For more data, circle 54 on colored card.

Liquid Seal Automatic Air Spray Systems allow no material overspray and no spray booth is necessary. Engineering staff is available to advise you on the Ultra Low Pressure Electrostatic oscillating fan air spray systems. Directional centrifugal electrostatic spray systems also available. The Gyromat Corp., Kings Highway Cutoff, Fairfield, Conn.

For more data, circle 55 on colored card.

Paint Overspray can be reprocessed in our plant to conform to its original specification in phyisical and chemical properties. Paint waste overspray or paint sludge can be used again in regular production at considerable savings. Mixed color sludges can be converted to primers. W. C. Richards Co., 3108 W. Vermont St., Blue Island, Illinois.

For more data, circle 56 on colored card.

"Coritex" Leather-Like Finish is abrasion-resistant, covers imperfections in moldings and castings, and is easily cleaned. Can be sprayed by conventional methods or electrostatically. Available in black, white and all colors. Duralac Chemical Corp., 84 Lister Ave., Newark 5, N. J.

For more data, circle 57 on colored card.

PROTECT LUNGS against
PAINT SPRAY – DUST – FUMES
DUPOR No. 4 RESPIRATOR has big double filters for easy breathing and greatest filtration! Soft rubber face mask gives airtight fit. Patented DUPOR valves bring in clean air—throw off breathed air! Weight 4 oz. Economical! Costs only $2.25 postpaid. Order Now!
H. S. COVER CO., Dept. 1010, South Bend 14, Ind.

For more data, circle 220 on colored card.

S/Q Duracote by Tousey Varnish Co., 520 W. 25th St., Chicago, Ill., makes possible the storage of equipment in an open area for an indefinite period before selling. S/Q Duracote eliminates costly retreating, even after several months of open-air storage, has greater film flexibility and it can be duplicated in both color and method of application to your present finish.

For more data, circle 58 on colored card.

Hot Airless Spray System by Nordson Corp., Amherst, Ohio, can help cut finishing costs 17% or more. Manufacturers have found their product can be sprayed better, faster and more economically. Write for free copy of brochure on the Hot Airless Spray System.

For more data, circle 59 on colored card.

Buton Resins contribute to low-cost, long-lasting protective metal primers. They possess excellent hardness, toughness and flexibility together with resistance to detergents, salt spray, boiling water and many acids and alkalis. Provide good adhesion with conventional top coats on steel, tin plate, aluminum and various light metals. Enjay Chemical Co., 15 W. 51st St., New York 19, N. Y.

For more data, circle 60 on colored card.

"Electro-Cold Stripper" will strip vinyls, alkyds, japans, hammers, primers, wrinkles, enamels and epons in minutes. Is non-flammable, requires no heat or current. Complete data and testing sample free on request. Allied Finishing Specialties Co., 2614 W. Grand Ave., Chicago 12.

For more data, circle 61 on colored card.

One-Step Fume Elimination and valuable heat recovery for a wide range of chemical and industrial processes is provided by a compact catalytic combustion system by Catalytic Combustion Corp., 4725 14th St., Detroit 8, Mich. Free brochure on heat recovery and air correction is available.

For more data, circle 62 on colored card.

Electric and Gas Infrared Ovens provide uniform heat. Heat is transmitted directly to the work, no bulbs or tubes to burn out or break, and are adaptable to any conveyor or system. Copies of "The Story of Modular Infra Red Ovens" free upon request. Infra-Red Systems, Inc., 240 Route 23, Riverdale, N. J.

For more data, circle 63 on colored card.

AGATEEN

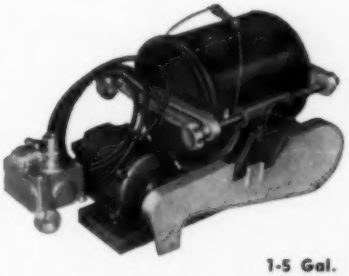
Beautiful and Rugged!
AGATEEN NO. 2B
CLEAR LACQUER

For wear, tear and long usage! Will not produce feathered edges if engraved.
A Champion general all-around Lacquer for Silver, Brass, Gold! See next issue for more interesting data!

AGATE LACQUER MANUFACTURING CO., INC.
Serving Industry Since 1927
11-13 43rd Road
Long Island City, N. Y.
STillwell 4-0660-1

AGATEEN
THE LAST WORD IN QUALITY

For more data, circle 233 on colored card.



1-5 Gal. Capacity

Model 4 Bull Dog Shaker

Will condition to paint brushing consistesey in one to five gallon cans without opening the can. Time required is from two to thirty minutes depending on the paint formulation and the length of time it has been on the shelf. Simply place the can in the saddle, tighten the end plates and flip the switch. Bull Dog will do the rest.

Grenier & Co., Inc.
13142 Rexford St., Blue Island, Illinois

For more data, ircle 234 on colored card.

Strainers for Paints, varnishes, lacquers or enamels. Made with cloth inserts, heavy white paper; all meshes, 6-in. diameter. One-third larger straining area. Sample and price list available. Deborah Sales & Mfg. Co., 32 Vesey St., Newark 5, New Jersey.

For more data, circle 64 on colored card.

Drum Rollers for blending pigments, mixing paints and agitating solutions are available from U. S. Stoneware, Akron 9, Ohio. Bulletin DM-290 contains details on the full "U.S." drum roller line. Equipment for 5-gallon pails to 55-gallon drums is available.

For more data, circle 65 on colored card.

IDEAL TACK RAGS
FOR A
PERFECT FINISH
Bulk, Bagged and Rolls
IDEAL CHEMICAL COMPANY
1499 Dean Drive
South Euclid 21, Ohio

For more data, circle 235 on colored card.

The New **PEARL GLO**

Synthetic Pearl Pigment
SUPERIOR TO NATURAL
at the Synthetic Price

TEST PEARL GLO (new synthetic *Patented essence), whether you spray, dip or incorporate, you'll find a saving in equipment & labor required. Use it on any sealed surface, plastic, metal, wood, leather, paper, etc. It may also be incorporated into Acrylic, Polyester, Vinyl, Polyethylene, etc. Gives a dazzling pearl finish at very low cost.

WRITE TODAY FOR A TRIAL SAMPLE OF PEARL GLO for a test run and full information. Specify application & choice of vehicle.

ARGENTA PRODUCTS CO. ***(Since 1919)***

SYNTHETIC DIVISION
Home of "PEARL GLO"
74-80 Forrest St.
Jersey City, N. J.

NATURAL DIVISION
Sea St.
Eastport,
Maine

****Patent No. 2,807,858***

For more data, circle 236 on colored card.

Finishes Consultant, with no supplier affiliations, can give you a 4-day "consulting package." Complete process analysis with detailed equipment specifications can be given. E. A. Zahn, 3502 Hillsboro Court, Louisville 7, Ky.

For more data, circle 66 on colored card.

"Nacromer" Synthetic Pearl Essence adds sparkle, highlights and richness to an otherwise ordinary coating. Nacromer is compatible with most coating vehicles and can be applied to practically any material by the usual coating methods. 8-page Nacreous Pigment Handbook contains information on natural and synthetic pearl essence. The Mearl Corp., 41 East 42nd St., New York 17, N. Y.

For more data, circle 67 on colored card.

New Savings in Enamel Paint Spraying. A new system for spray painting, using Hi-Sol Enamel reducer, produces savings up to one-third, according to Potter Paint Co., Inc., Cortland, N. Y., and Cambridge City, Ind. The H.S.R. System (Hi-Sol Reducer) lowers the cost per gallon of ready-to-use mix by using more of the special reducer with less air pressure. Puts more paint on the product—less on the booth. The special Hi-Sol Reducer increases coverage per gallon at required mil thickness and achieves desired finish quality, according to the manufacturer.

For more data, circle 68 on colorel card.

Alemite Versatal Low Pressure Pumps provide continuous flow of material under the most difficult operating conditions. Versatal Model 7884-A Pump can serve 2 miles of pipeline. Can pump from 55-gallon drums or paint vats. Many models of heavy-duty pumps available. Stewart-Warner Corp., Dept. BQ-71, 1850 Diversey Parkway, Chicago 14, Illinois.

For more data, circle 69 on colored card.

Industrial Finishes with eye-appeal and buy appeal, are formulated by Cook Paint & Varnish Co., Kansas City, Mo. Coatings for both inside and outside of cameras and projectors are a specialty.

For more data, circle 70 on colored card.

Production Wood Grain Finish can be produced on stock of wood, paper, metal, plastic, hardboard and particle board from 6-in. to 60-in. wide. Roll coaters and reverse coaters available; one unit or a complete system. Roto Finishing Systems, 1501 S. Alameda St., Compton, Calif.

For more data, circle 71 on colored card.

Unifio Stains are finely dispersed pigment stains which can be applied by spray or brush to close-grained woods such as poplar, gum, maple and birch. Do not require wiping. Give appearance of a wiping stain; air-dry in one hour. Can be sprayed on hard-to-reach corners without showing white lines. The Lawrence-McFadden Co., Inc., 7430 State Road, Philadelphia 36, Penn.

For more data, circle 72 on colored card.

Pump for Airless Spray Painting permits spraying direct from original 55-gallon containers. Pump is designed for single gun airless spraying of protective and decorative coatings. Model 41-8881 mounts directly into bung of 55-gallon container thus eliminates the cost of transferring material to another container before spraying. Binks Mfg. Co., 3120 Carroll Ave., Chicago 12, Ill., offers Bulletin A41-24 telling about other Binks pumps.

For more data, circle 73 on colored card.

"Paint Guard" Coating for paint spray booths is ready for use without dilution, easy to apply and remove, has high light reflectance but low specular gloss, and won't pick up on workers' shoes. It is economical, non-combustible and suitable for sandwiching. Information or demonstration that will help solve your spray booth coating problems is available from Kelite Corporation, Los Angeles 12, Calif.

For more data, circle 74 on colored card.

Air-Replacement Units come complete with housings, fans, burners, controls, filters, dampers, roof or wall air intakes, ready to install. Units can be designed for any simple or elaborate system required, manual or automatic, to meet your climate and plant conditions. The DeVilbiss Co., Toledo 1, Ohio.

For more data, circle 75 on colored card.

Fast Strippers, Lea "Coldstrip" and "Synstrip" are clean working and non-corroding. These strippers break the bond between metal and organic coating; do not dissolve lacquer or enamel. Complete technical information available. The Lea Mfg. Co., 16 Cherry Ave., Waterbury 20, Connecticut.

For more data, circle 76 on colored card.

BC Chromic Acid (flake) is available from Better Finishes & Coatings, Inc., 268 Doremus Ave., Newark 5, N. J. Every batch is checked, and every can filled with a full weight of extra-high quality Chromic Acid. Prompt delivery from factory and nearby distributor stocks.

For more data, circle 77 on colored card.

Prime Coating for pre-sealing pressed fiber boards for exterior siding, is one of the many specialty coatings developed by "The Man from Minnesota." Modern laboratory facilities and "know how" can help develop a coating for your product and method of application. Minnesota Paints, Inc., Minneapolis 15, Minn.

For more data, circle 78 on colored card.

STRAINERS

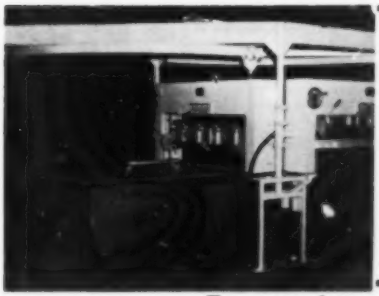
For Paints, Varnishes, Lacquers or Enamels

Made with cloth inserts — heavy white paper — all meshes — 6-inches in diameter — single leg. One-third larger straining area.

Write for sample and price list!

DEBORAH SALES & MFG. CO.
32 Vesey St., Newark 5, N. J., Phone MA 2-8166

For more data, circle 237 on colored card.



Steinemann *Pressure Curtain* **COATER**

Exclusively Steinemann—coating change in 60 seconds with pivotable heads. *Pressure curtain* and pivotable heads give more of what you need most in a curtain coater—and cost no more. For new brochure write:

wilco machine works, inc.

Box 3897 IF-10 Memphis 14, Tenn. WH 8-4555

For more data, circle 221 on colored card.

Gold, Copper and Aluminum are now available in Cres-Lite brilliant, metallic bronze powders. Color card showing the 44 colors now available is free upon request. Special or matched colors can be made. Crescent Bronze Powder Co., 118 W. Illinois St., Chicago 10, Illinois.

For more data, circle 79 on colored card.

Synflex Universal Paint Spray Hose is flexible, light and economical. Has abrasion resistance, can be used for hot or cold spraying, has high strength, handles all finishes. Comes in 500-ft. reels. For all of your paint spray hose needs contact Samuel Moore & Co., Synflex Products Divn., Mantua, Ohio.

For more data, circle 80 on colored card.

"TOMORROW'S Products Tested TODAY"®

A service to aid industry in producing longer-lasting and better-looking products. Quick predetermination of durability and permanency by actual exposure test in South Florida. Write us today for full information.

SOUTH FLORIDA TEST SERVICE, INC.

EST. 1931

4301 N. W. 7th St. Miami 44, Fla.

® Reg. U. S. Pat. Off.

For more data, circle 238 on colored card.

paint strainers
FOR STRAINING LACQUERS ENAMELS, PAINTS OR VARNISHES
Made of heavy paper stock, with cloth inserts in coarse, medium, fine or extra fine mesh. 6 inches in diameter.
LOUIS M. GERSON CO
Box 175 A Mattapan, Mass. Phone: CY 6-1463

For more data, circle 239 on colored card.

"Walk-in" Ovens are shipped set up, ready to uncrate and connect. Six standard models are available. Work space from 96-ft. to 240-cu.ft. and temperature ranges from 650° F. to 1250° F. are available. Ovens are equipped with safety devices, indicating temperature controller and are factory tested and calibrated. Literature on all models of ovens available. Grieve-Hendry Co., Inc., 1341 N. Elston Ave., Chicago 22, Ill.

For more data, circle 81 on colored card.

Ovens, Dryers, Controls and Handling Equipment can be engineered and installed by J. O. Ross Engineering, New York 17, N. Y. A compact and efficient finishing system for your product and finishing methods in your allotted space can be set up skillfully and economically.

For more data, circle 82 on colored card.

Aerosol Finishes — custom-loaded by Sprayon—never vary in color or performance, as they are tested and proved in Sprayon's quality-control laboratory where paint chemists and paint technicians make sure of this fact. All test data, materials and samples are dated, coded and filed for future reference. Sprayon Products, Inc., 2605 E. 65th St., Cleveland 3, Ohio.

For more data, circle 83 on colored card.

Metal Coatings for your standard requirements or for the solution to a unique problem, can be formulated in the modern research laboratories of Gordon Bartels Co., 2600 Harrison Ave., Rockford, Ill. Bartels Metal Decorating coatings have the consistent order-to-order uniformity. For metal decorating problems consult Gordon Bartels Co.

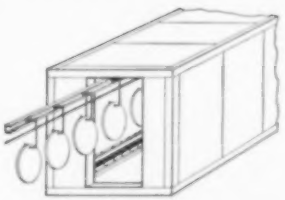
For more data, circle 84 on colored card.

IN YOUR NEXT **DRY-OFF** AND **FINISHING OVENS**

SPECIFY **RED-RAY** INFRA-RED

GAS BURNERS

Backed by more than 20 years of experience, RED-RAY Burners are effective, efficient, economical. Contact us for more information.



RED-RAY MFG. CO., INC.

Cliff Lane, Cliffside Park, N. J. • Tel.: WHitney 3-1000

For more data, circle 222 on colored card.

Thickness Measurements and paint hiding

Alcohols, Solvents and Chemicals, from

PAINT HIDING POWER and THICKNESS MEASUREMENTS

Quickly and Accurately Determined with the PFUND CRYPTOMETER and the PFUND PAINT FILM GAGE

Write your laboratory supply house for descriptive folder or direct to...

KOEHLER INSTRUMENT COMPANY, INC., 168-56 Douglas Ave., Jamaica 33, N. Y.

For more data, circle 223 on colored card.

The Ransburg No. 2 Process increases paint mileage and improves quality. Information on the Ransburg No. 2 Process and the No. 2 Process Electrostatic Hand Gun, which can be used in either conveyorized or non-conveyorized painting, is available. Ransburg Electro-Coating Corp., Box 23122, Indianapolis 23, Ind.

For more data, circle 85 on colored card.

Oakite 24 Tank-Cleaning Compound is a hard working alkaline cleaner for iron and steel parts. Gets under the dirt layers and removes soil from the surface. Other tank-cleaning compounds are available for various types of soil and materials. Oakite Products, Inc., 20 Rector St., New York 6, N. Y.

For more data, circle 86 on colored card.

"Spra-Lube" for controlling over-spray of paints in water-wash paint-spray booths, paint strippers, soak and electro-cleaners, "Interlox" process for cleaning and phosphatizing prior to organic finishes, "Alkalume" process for cleaning and preparing aluminum for finishing are some of the materials and processes offered by Northwest Chemical Co., 9310 Roselawn, Detroit 4, Mich. A Northwest cleaning specialist will help you work out the best surface preparation for your product.

For more data, circle 87 on colored card.

Electric Infrared Processing equipment is described in two new informative booklets issued by The Fostoria Corp., Fostoria, Ohio. For temperature requirements under 900° F. ask for folder entitled, "Applications Unlimited." For temperature requirements from 900° to 3000° F., ask for the "Breakthrough" folder.

For more data, circle 88 on colored card.

JUERGENS

"MAGIC" Tack Rags

Improve Your Finish 100% ! !

...remove specks, lint, and sand particles on the surface of metal, wood or material to be finished. "MAGIC" TACK RAGS remain tacky indefinitely, and are spontaneous combustion proof. Sample upon request.

WM. JUERGENS Manufacturing Co.
(Est. 1923) 998 Whittier St., Toledo 9, Ohio

For more data, circle 240 on colored card.

Give The UNITED Way

Automatic Viscosity Control for spraying, flow coating and dipping improves quality of painting and finishing by providing continuous uniformity of paint material. Norcross Corp., 247 Newtonville Ave., Newton 58, Massachusetts.

For more data, circle 89 on colored card.

Spray Nozzles for metal washing, coating and rinsing, in various materials and patterns, are available from Wm. Steinen Mfg. Co., 39-47 Bruen St., Newark, N. J. Catalog 59 and Data Sheets on various sizes and types of nozzles are available.

For more data, circle 90 on colored card.

"Magic Tack Rags" are scientifically

"Multakolor" gives the beauty of two or

Thickness Measurements and paint hiding power can be quickly and accurately determined with the Pfund crytometer and the Pfund paint film gage. A descriptive folder on these instruments is available. Koehler Instrument Co., Inc., 168-56 Douglas Ave., Jamaica 33, New York.

For more data, circle 91 on colored card.

Radcor Electric Temperature Rated infra-red ovens can be supplied with temperature range from 235° F. to 660° F. Catalog BRG-115 shows you how to cut costs, get the exact performance you need and take the mystery out of oven selection. Radcor, Inc., Dept. F, P. O. Box 432, Fostoria, Ohio.

For more data, circle 92 on colored card.

Surface Finishing Machines for rust removal, polishing, brushing, waxing, etc., are available from Clair Mfg. Co., Inc., Olean, N. Y. All models come with a wide choice of options which brings each Clair machine into specific conformance with your individual requirements.

For more data, circle 93 on colored card.

Wood Grain Reproducing Equipment, in 60 different types and models, is available from Schmutz Mfg. Co., 1600 W. Main St., Louisville 3, Ky. Machines for printing metal, masonite or wood cabinets automatically. Visit the plant, see machines under construction and doing actual work on the test floor. Roller coaters also available.

For more data, circle 94 on colored card.

Control Paint Overspray the inexpensive effective way. R. P. Paint Arrestors are disposable air filters which trap overspray solids before they reach the exhaust stack, therefore reduce fire hazards, damage to adjacent property, and disagreeable and time-consuming maintenance work. Easy to install, remove and replace in any size or type of booth. Research Products Corp., Madison 10, Wis.

For more data, circle 95 on colored card.

Alcohols, Solvents and Chemicals, from bulk shipments to drum lots are available from 21 conveniently located plants throughout the United States. Contact the member of the Solvents & Chemicals Group nearest you for quick service, or get in touch with The Solvents & Chemicals Group, 2450 West Flournoy St., Chicago 12, Ill.

For more data, circle 96 on colored card.

"Red-Ray" infra-red gas burners are effective, efficient and economical. Can be installed effectively and economically in your next dry-off and finishing ovens; backed by more than 20 years of experience. Complete information available. Red-Ray Mfg. Co., Inc., Cliff Lane, Cliffside Park, N. J.

For more data, circle 97 on colored card.

"Pearl Glo" Synthetic Pearl Pigment can be sprayed or dipped on any sealed surface of plastic, metal, wood, leather, paper, etc. Can also be incorporated into acrylics, polyester, vinyl, etc. Gives a pearl finish at low cost. Sample available. Specify application and choice of vehicle. Argenta Products Co., 74-80 Forrest St., Jersey City, New Jersey.

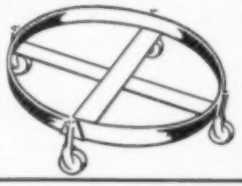
For more data, circle 98 on colored card.

Aerostat Static Eliminator permits large, odd-shaped parts to pass through the airstream of the Aerostat and instantly become completely neutralized. Can be effective at distances up to 3-ft. Removes static effectively at molding stations, conveyor lines, etc. The Simco Co., 920 Walnut St., Lansdale, Penna.

For more data, circle 99 on colored card.

"Bull Dog Shaker," Model 4, conditions paint to brushing consistency in one to 5-gal. cans, without opening the can. Time required is from two to 30 minutes, depending on paint formulation and length of time paint has been on the shelf. Easy to operate. Grenier & Co., Inc., 13142 Rexford St., Blue Island, Ill.

For more data, circle 100 on colored card.



MORSE DRUM DOLLY No. 13

Perfect for vertical handling of open end drums. Easily handles loads up to 700 lbs. Built of 2½" steel for long life. 24" diameter; overall height 6½". Has four 3" dia. steel swivel casters for easy rolling into small areas. Rubber wheels available.

MORSE MFG. CO., INC. **$17.90** FOB

763 W. Manlius St., E. Syracuse, New York

For more data, circle 224 on colored card.

"Magic Tack Rags" are scientifically made to create the "tack" that picks up dirt, sand, and foreign matter on the surface to be finished. Will not dry hard—but retains "tack" indefinitely. Wm Juergens Mfg. Co., 998 Whittier St., Toledo 9, Ohio.

For more data, circle 101 on colored card.

IC Paladin Primers stick to about anything and provide a tough, flexible bond for lacquers, air-dry or baking enamels, vinyls and practically any other type of finishing coat. Dry fast and can be recoated in less than an hour. Available in black, gray, aluminum, zinc chromate and clear. Having adhesion problems? Contact Interchemical Corp., Finishing Divn., 224 McWorter St., Newark 5, N. J.

For more data, circle 102 on colored card.

Steinemann Pressure Curtain Coater Operates with exclusive pressure curtain and gravity curtain. Pivotable heads give more of what you need most in a curtain coater. New Free brochure available. Wilco Machine Works, Inc., Box 3897, Memphis 14, Tenn.

For more data, circle 103 on colored card.

"Gripalloy" Primer for 25 Metals is available in black and colors; excellent adhesion . . . and resistance to salt spray and solvents. Cuts pre-treatment costs in half. Tenax Finishing Products Co., 390 Adams St., Newark 5, N. J.

For more data, circle 104 on colored card.

Baking Ovens, Conveying, surfacing preparation, painting are some of the many finishing operations included in the Complete Finishing Systems engineered and installed by George Koch Sons, Inc., Evansville 4, Ind.

For more data, circle 105 on colored card.

Perfex Satin Finishes need no rubbing. The "flat" finish has a rubbed appearance and waxed feel. Is quick setting, drying and is water and liquor proof. Available in a full range of sheens. Eliminates costly rubbing operation, yet gives a rubbed-effect finish. Perfection Paint & Color Co., Indianapolis 2, Indiana.

For more data, circle 106 on colored card.

Tack Rags for use prior to painting, to wipe off and hold dust and dirt particles too small to see, but which might leave a blemish on the final coat of paint or finish, are available from Ideal Chemical Co., 1499 Dean Drive, South Euclid 21, O.

For more data, circle 107 on colored card.

"Multakolor" gives the beauty of two or more colors in just one application. Has resistance to alcohol, grease, oil, ink. Hides imperfections and inexpensive base materials. Available in any combination of colors you wish. United Lacquer Mfg. Corp., Linden, N. J.

For more data, circle 108 on colored card.

Agateen No. 28 Clear Lacquer is a general all-round lacquer for silver, brass and gold. Will not produce feathered edges if engraved. Agate Lacquer Mfg. Co., Inc., 11-13 43rd Road, Long Island City, N. Y.

For more data, circle 109 on colored card.

Plastic Steel Repair Compound, tack rags, Viscosity conversion table disc, synthetic sponges, thickness gauge—these are just a few of the industrial finishing specialties available from Paint Room Supply Co., P. O. Box 7253, Louisville 7, Ky.

For more data, circle 110 on colored card.

Fostoria Infrared Brochure

Fostoria Corp., 1200 N. Main St., Fostoria, Ohio, offers a new 8-page 2-color brochure explaining the principle of radiant heat, describing Fostoria's equipment designed for utilization of the electric infrared radiant heating process, and picturing some of the many and varied industrial applications of its use.

Because infrared radiant heat is fast, efficient, completely controllable, safe and clean, it is regarded as a valuable tool in a wide variety of industrial uses. Although originally developed for paint baking on metal, Fostoria's equipment is used in many other industries.

For more data, circle 111 on colored card.

Devices to Kill Static

A 4-page, 2-color bulletin, 8½x11-in., illustrates and briefly describes many different devices for removing static from parts being finished. For a free copy write to The Simco Co., 920 Walnut St., Lansdale, Penna.

For more data, circle 112 on colored card.

3-Day School for Finishers

Finishine Laboratories, Inc., 627 Tallman St., Syracuse 4, N. Y., announces another Finishine Free School for Finishers on the 6th, 7th and 8th of Nov.

FINISH SUPERVISOR.

Long on wood finishing experience, 25 years. Short on supervisor experience, 2 years. Willing to learn. Experience in lacquers, enamels, varnishes, inks, artificial graining, stains and color matching. Finishing repairs. Letters of past experience sent on request. Address IF-868, care Industrial Finishing.

POSITION WANTED.

Young man with thorough knowledge of finish patching and complete finishing. Also experience in other repair skills on upholstery, plastics, leather and metal. Desires employment with a retailer or furniture producer. Will relocate. Finest references available. J. BICKEL, R.R.6, Benton Rd., Muncie, Indiana.

LAB. TECHNICIAN WANTED.

Industrial paint control lab needs man with paint spraying and testing experience. Address IF-872, care Industrial Finishing.

PAINT SALESMAN WANTED.

Old established inlustrial finishes company located in Newark, N. J., wants an experienced salesman with a following in this field. We are ready to turn over a sizable number of house accounts to the right man. Salary ani commission. Give complete background in first letter. All replies will be kept in strict confidence. Address IF-765, care Industrial Finishing.

INDUSTRIAL PAINT CHEMIST WANTED.

Graduate Chemist with 3-5 years minimum formulation experience. Opportunity for challenging work with fast growing established New Jersey concern. Address IF-870, care Industrial Finishing.

"We find new materials through your magazine."—*Franklin Table Co., Louisville 2, Ky.*

CLASSIFIED ADVERTISING

The rate on ads appearing in this department is $1.00 per line of 6-pt. light face type, per insertion. Minimum charge, $5.00. Ads set in 8-pt. extra bold face type cost $2.00 per line, per insertion.

There may be certain firms or individuals to whom you do not want your reply sent. Simply address your communication to the box number in the ad and attach a separate list of names. Place both in a separate envelope addressed to Industrial Finishing Magazine, 1142 N. Meridian St., Indianapolis 4, Ind. If the advertiser is on the list you submit we will then destroy your letter. Names of advertisers using box numbers not revealed.

WANTED — CHIEF ENGINEER PAINT FINISHING SYSTEMS

Spray Phosphate Washers
Paint Application Equipment
Dry-off and Paint Bake Ovens
Conveyors

Position with established manufacturer who is now expanding into a new plant. Salary open for top man. Plant located in Metropolitan New York area. Please send resume. Address IF-873, care Industrial Finishing.

SALESMEN WANTED.

Progressive manufacturer of industrial coatings has openings for outstanding salesmen in New York area, New England, South Eastern states, Ohio, Pennsylvania and many other lucrative areas. In addition to up to date wood and metal finishes our line extends into vinyl printing inks and adhesives for fabric and plastic laminating. Extremely close cooperation between each salesman, technical director and top management. Submit resume of background and experience. Replies held in strict confidence. Address IF-850, care Industrial Finishing.

FINISHING FOREMAN WANTED

For an important kitchen cabinet manufacturer located in Chicago area. Excellent opportunity for right man. Please submit work history and references. Replies treated in strict confidence. Address IF-869, care Industrial Finishing.

WE NEED

Salesmen to sell top quality competitively priced lacquer thinners. Profitable sideline—excellent door opener for finishes or related lines. Unlimited earnings on commission basis. Address IF-801, care Industrial Finishing.

SALESMEN, INDUSTRIAL FINISHES.

Large well-established manufacturer of a complete range of industrial coatings wants aggressive man for New England area. Guaranteed income against liberal commissions. Address IF-871, care Industrial Finishing.

ATTENTION: ALL FINISH SALESMEN.

If your present line does not include varnish, you are missing a bet. PERFEX VARNISHES are unexcelled (yes, unequalled) and are well known by volume finish users. Look at our display advertisement on page 91 of this magazine. If you are interested in the possibility of taking on PERFEX VARNISH in addition to your present line, write us. All replies will be kept in strict confidence. PERFECTION PAINT & COLOR CO.

DIRTY THINNERS AND SOLVENTS WANTED.

Send samples and letters giving approximate contents. GET CASH FOR SCRAP. THE JOHANN COMPANY, 13900 Grant St., Dolton, Illinois. Phone Dolton 4850.

WANTED.

Dirty solvents and thinners. Please send samples. Have clean reclaimed solvents for sale. Modern efficient solvent recovery service. Will process for customers, material at fraction of the original cost. ACME RECLAIMING, Inc., 1915 20th Ave., Rockford, Illinois.

LET US COAT YOUR SMALL PARTS ¼-MM to 35-MM SIZES

Specialists for coating smallest of items from ¼-mm to 35-mm size; any shape, round, flat, solid or with holes, and any material, plastic, glass, wood, etc. Production methods at low cost. Any color or shade or protective coating desired.

New exclusive processes by reliable manufacturer with fifty years' coating experience. Address IF-854, care Industrial Finishing.

FOR SALE.

Small automatic dip lacquering machine; separate oven with electric heating elements, range 100° to 300° F. (also known as conveyor type). Can be used for small parts; can lacquer and dry 25,000 pieces in eight hours by two experienced operators. Tanks hold thirty gallons mixed lacquer and thinner. Cost over $2500; will sell complete, ready to operate on 110 Volts AC, as is, for $1250 . . . . a bargain! CHARLES W. HARDY & SON, 117 36th St., Union City, N. J.

FOR SALE
HAMANT GRAINING MACHINES

4-V27 Hamant Vertical Graining Machines.....@ $2500.00 each.
COLONIAL PRODUCTS CO.
Broad & Park Sts.
Dallastown, Pa.
Phone: Red Lion 244-4011

BARGAINS IN FINISHING EQUIPMENT

WE CARRY A LARGE STOCK OF REBUILT USED FINISHING EQUIPMENT INCLUDING BINKS, ECLIPSE AND PAASCHE AUTOMATIC SPRAY MACHINES

SPRAY BOOTHS	CONVEYORS	PHOSPHATIZING UNITS
MIXING TANKS	FANS	CENTRIFUGAL ENAMELERS
PAINT HEATERS	OVENS	DEGREASERS
PRESSURE TANKS	LIGHTS	PUMPS, MOTORS, ETC.

GENERAL EQUIPMENT AND TRADING CO. • 2629 W. GRAND AVE., CHICAGO 12, ILL.

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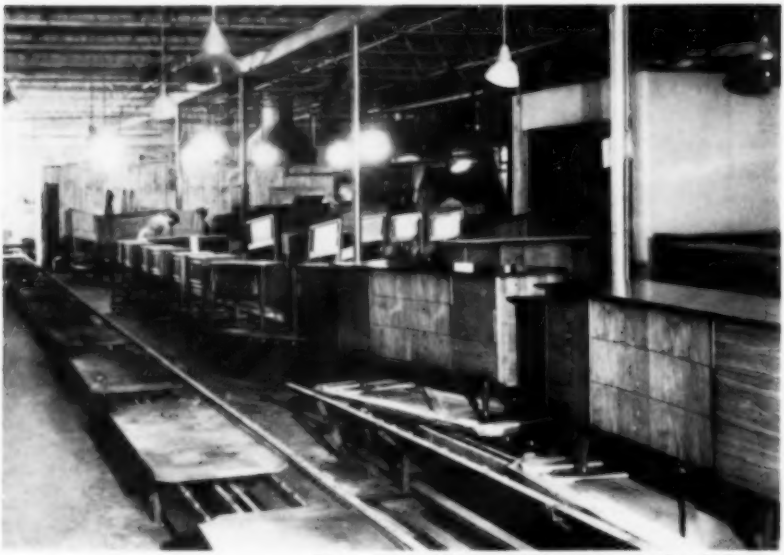

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